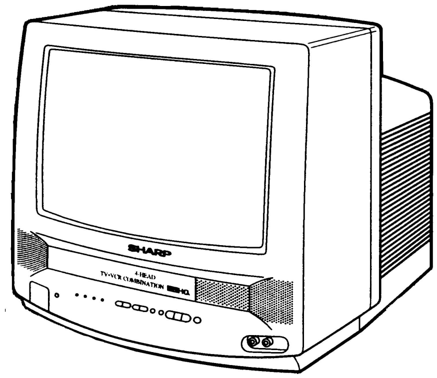
SHARP SERVICE MANUAL

S29D413VTL200



TV/VCR COMBINATION

Chassis No. B97B

MODEL 13VT-L200

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

SHARP CORPORATION

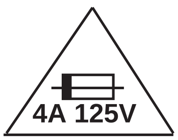
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The contents are subject to change without notice.

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulation material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit.The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



CAUTION: FOR CONTINUED PROTECTION AGAINST A RISKOF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Note that the picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicepersonel have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value -no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation that exceeds specifications.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION
(Continued)

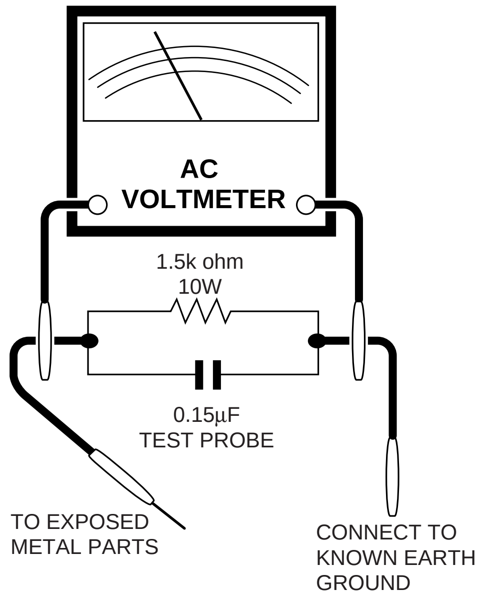
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using to clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  All check must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp.
  Any measurements not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics.
These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have special safety characteristics are identified in this manual; electrical components having such features are identified by " ⚠ " and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

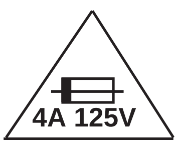
For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

PRECAUTIONS A PRENDRE LORS DE LA REPARATION

■ **Ne peut effectuer la réparation qu' un technicien spécialisé qui s'est parfaitement accoutumé à toute vérification de sécurité et aux conseils suivants.**

AVERTISSEMENT

1. N'entreprendre aucune modification de tout circuit. C'est dangereux.
2. Débrancher le récepteur avant toute réparation.
3. Les déversoirs thermiques à semi-conducteurs peuvent présenter un danger de choc électrique lorsque leréceqteur est en marche.
4. Le châssis de ce récepteur a deux systèmes de mise à la terre qui sont séparés par un matériau isolant. Le système de mise à la terre non-isolée (chaud) est pour le circuit du régulateur de tension B+ et le circuit de sortie horizontale. Le système de mise à la terre isolé est pour les basses tensions C. C. B+ et le circuit secondaire du transformateur de haute tension.



PRECAUTION:POUR LA PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE, REMPLACER LE FUSIBLE PAR UN FUSIBLE DE MEME TYPE 4A-125V.

REPARATION DU SYSTEME A HAUTE TENSION ET DU TUBE-IMAGE

Lors de la réparation de ce systéme, supprimer la charge statique en branchant une résistance de 10 k en série avec un fil isolé (comme une sonde d'essai) entre la mise à la terre du tube-image et le fil d'anodel. (Le corden d'alimentation doit être retiré de la prise murale.)

1. Il est à noter que le tube-image de ce récepteur est intégralement protégé contre l'implosion.
2. Par mesure de sécurité, changer le tube-image pour un tube du même numéro de type.
3. Ne pas lever le tube-image par son col.
4. Ne manipuler le tube-image qu'en porant des lunettes incassables et qu'après avoir déchargé totalement la haute tension.

LIMITES DES RADIATIONS X ET DE LA HAUTE TENSION

1. Tout le personnel réparateur doit être instruit des instructions et procédés relatifs aux radiations X.
   Le tube-image, seule source de rayons X dons les téleviseurs transistorisés, n'émet pourtant pas de rayons mesurables si la haute tension est maintenue à un niveau préconisé dans la section "Vérification de la haute tension".
   C'est seulement quand la haute tension est excessive que les rayons X peuvent entrer dans l'enveloppe du tube-image y compris le conducteur de verre. Il est important de maintenir la haute tension en-dessous du niveau spécifié.
2. Il est essentiel que le réparateur ait sous la main un voltmètre à haute tension qui doit être périodiquement étalonné.
3. La haute tension doit toujours être maintenue à la valeur de régime-et pas plus haute. L'opération à des tensions plus élevées peut entraîner une panne du tube-image ou du circuit à haute tension et, dans certaines conditions, peut entraîner une radiation dépassant les niveaux préscrits.
4. Quand le régulateur à haute tension fonctionne correctement, il n'y a aucun problème de radiation X. Chaque fois qu'un châssis couleurs est réparé, la luminosité doit être examinée bout en contrôlant la haute tension à l'aide d'un voltmètre pour s'assurer que la haute tension ne dépasse pas la valeur spécifiée et qu'elle soit correctement réglée.
5. Ne pas utiliser un tube-image autre que celui spécifié et ne pas effectuer de modifications déconseillées du circuit à haute tension.
6. Lors de la recherche des pannes et des mesures d'essai sur un récepteur qui présente une haute tension excessive, éviter de s'approcher inutilement du récepteur.
   Ne pas faire fonctionner le récepteur plus longtemps que nécessaire pour localiser la cause de la tension excessive.

PRECAUTIONS A PRENDRE LORS DE LA REPARATION

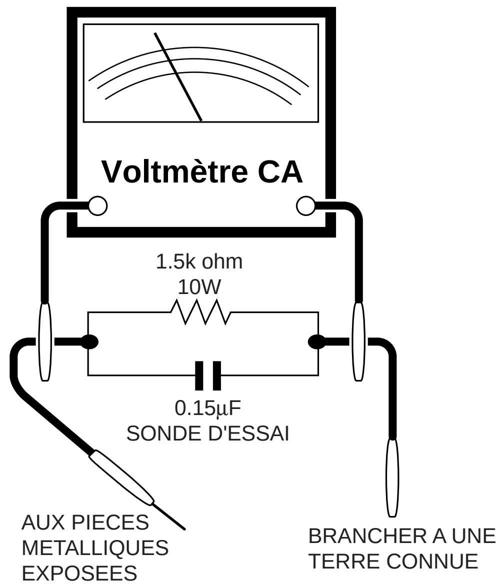
(Suite)

VERIFICATIONS CONTRE L'INCEN-DIE ET LE CHOC ELECTRIQUE

Avant de rendre le récepteur à l'utilisateur, effectuer les vérifications suivantes.

1. Inspecter tous les faisceaux de câbles pour s'assurer que les fils ne soient pas pincés ou qu'un outil ne soit pas placé entre le châssis et les autres pièces métalliques du récepteur.
2. Inspecter tous les dispositifs de protection comme les boutons de commande non-métalliques, les isolants, le dos du coffret, les couvercles ou blindages de réglage et de compartiment, les réseaux de résistance-capacité, les isolateurs mécaniques, etc.
3. S'assurer qu'il n'y ait pas de danger d'électrocution en vérifiant la fuite de courant, de la facon suivante:

- Brancher le cordon d'alimentation directem-ent à une prise de courant de 120V. (Ne pas utiliser de transformateur d'isolation pour cet essai).
- A l'aide de deux fils à pinces, brancher une résistance de 1,5 k 10 watts en parallèle avec un condensateur de 0,15µF en série avec toutes les pièces métalliques exposées du coffret et une terre connue comme une conduite électrique ou une prise de terre branchée à la terre.
- Utiliser un voltmètre CA d'une sensibilité d'au moins 5000 /V pour mesurer la chute de tension en travers de la résistance.
- Toucher avec la sonde d'essai les pièces métalliques exposées qui présentent une voie de retour au châssis (antenne, coffret métallique, tête des vis, arbres de commande et des boutons, écusson, etc.) et mesurer la chute de tension CA en-travers de la résistance.
  Toutes les vérifications doivent être refaites après avoir inversé la fiche du cordon d'alimentation. (Si nécessaire, une prise d'adpatation non polarisée peut être utilisée dans le but de terminer ces vérifications.)
  Tous les courants mesurés ne doivent pas dépasser 0,5 mA.
  Dans le cas contraire, il y a une possibilité de choc électrique qui doit être supprimée avant de rendre le récepteur au client.



AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les téléviseurs présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue. Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.
Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont identifiées par la marque " ⚠ " et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques.
Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies, radiations X ou autres accidents.

ELECTRICAL SPECIFICATIONS

TV SECTION

POWER INPUT:	120 V AC 60 Hz
POWER RATING:	65 W
PICTURE SIZE	
Width:	37.8 cm
Height:	38.7 cm
Depth:	38.2 cm
CONVERGENCE:	Magnetic
SWEEP DEFLECTION:	Magnetic
FOCUS:	Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency:	45.75 MHz
Sound IF Carrier Frequency:	41.25 MHz
Color Sub-Carrier Frequency:	42.17 MHz (Nominal)
AUDIO POWER OUTPUT RATING:	0.8 W (at 10% Distortion)
SPEAKER	
Size:	5 × 9 cm (2" × 3$^1/_2$")
Voice Coil Impedance:	16 ohm at 400 Hz
VHF/UHF ANTENNA INPUT IMPEDANCE:	75 ohm unbalanced
TUNING RANGES	
VHF-Channels:	2 thru 13
UHF -Channels:	14 thru 69
CATV Channels:	1,14 thru 125 (EIA, Channel Plan)

VCR SECTION

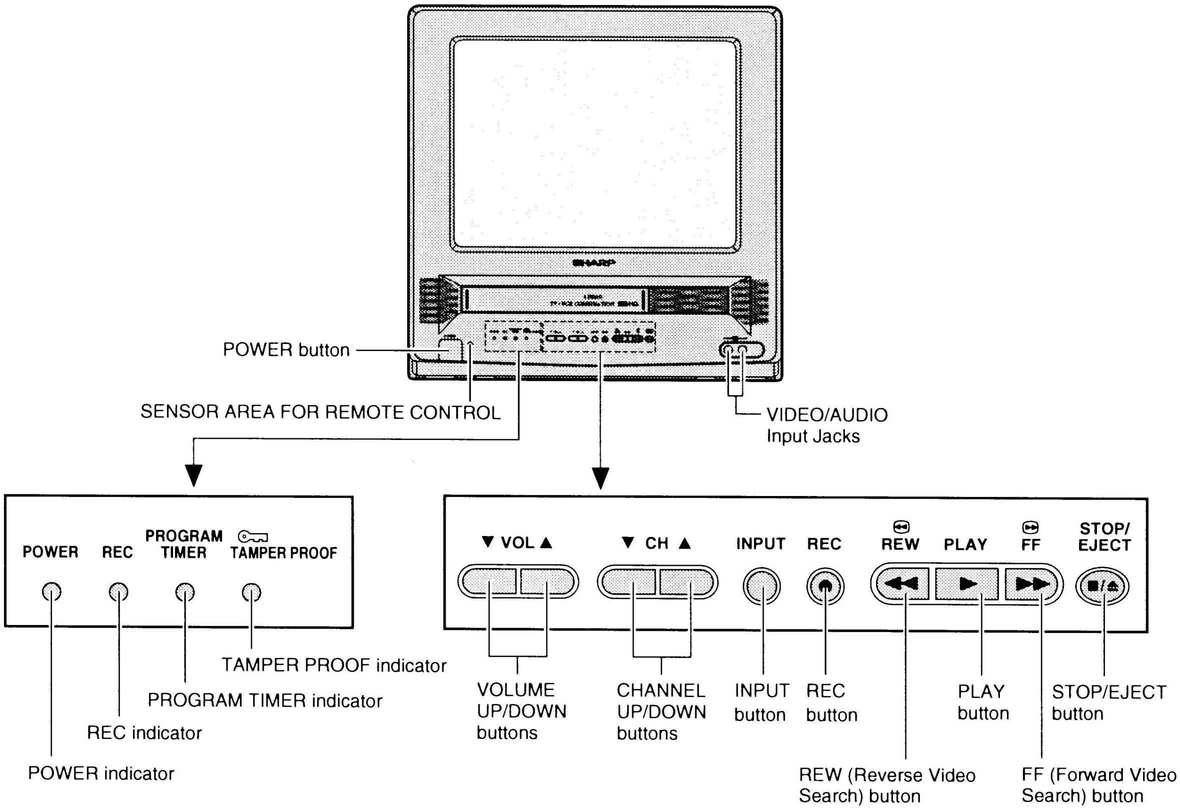
Format:	VHS Standard
Video Recording System:	Rotary Two-Head Helical Scanning
Number of Video Heads:	4 pcs.
Video Signal Standard:	NTSC Color System
Tape Width:	12.7mm (1/2inch)
Tape Speed:	(SP)33.35mm/sec (1.31 i.p.s)
	(LP)16.67mm/sec (0.66 i.p.s)
	Play back only
	(EP)11.12 mm/sec (0.44 i.p.s)
Maximum Recording Time:	(SP)160 min (T-160)
	(EP)480 min (T-160)
Video Input:	0.5 to 2.0 Vp-p, 75 ohm unbalanced
Audio Input:	-8 dB, 47k ohm unbalanced (0 dB-0.775 Vrms)
Operating Temperature:	5°C to 40°C (41°F to 104°F)
Storage Temperature:	-20°C to 60°C (-4°F to 140°F)

Specifications are subject to change without prior notice.

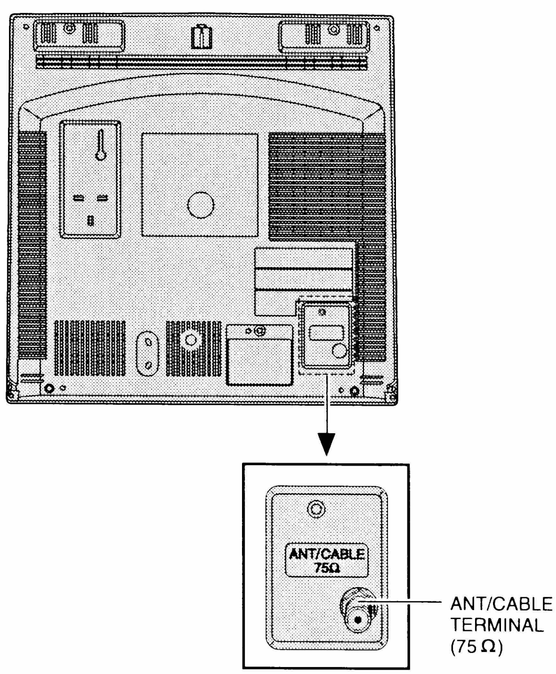
LOCATION OF USER'S CONTROL

Description Of Controls

FRONT

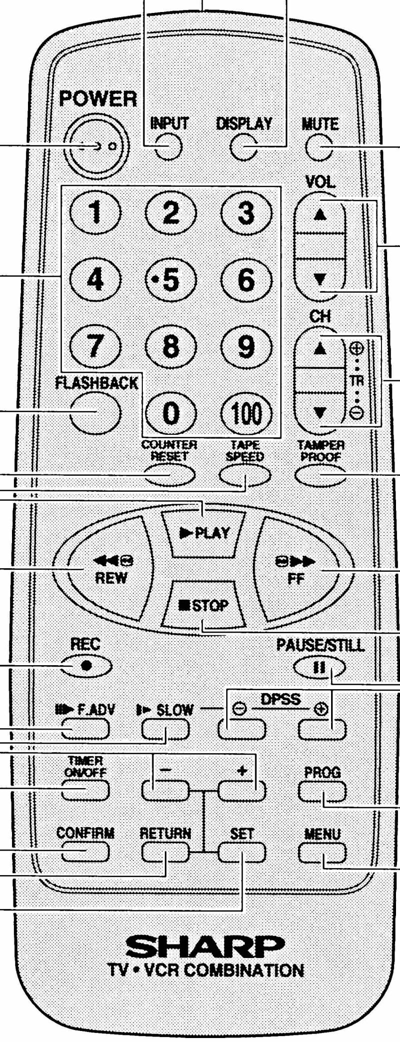


REAR



LOCATION OF USER'S CONTROL (Continued)

Location Of Control's Buttons (Remote Control)



INPUT
TV/VIDEO Select

POWER ON/OFF

CHANNEL SELECT

FLASHBACK
Returns to previously viewed channel.

COUNTER RESET
- Used to reset the tape counter.

TAPE SPEED
- Used to select the recording tape speed.

PLAY
- Used for tape playback.
- Used to cancel the PAUSE/STILL mode and return to normal playback operation.

REW
- Used to rewind the tape or to conduct Reverse Video Search during playback mode.

REC
- Used to record a program.

FRAME ADVANCE
- Used to advance the picture frame by frame.

SLOW
- Used for slow motion playback.

–, +

TIMER ON/OFF

CONFIRM
- Used to confirm the program setting.

RETURN

SET

Infrared Transmitter Window

DISPLAY
- Used to change the On Screen Display.

MUTE
Press → Mutes sound.
Press again → Restores sound to previous level.
Press the MUTE button to enter the CLOSED CAPTION mode automatically if the signal contains CC information.

VOLUME UP/DOWN

CHANNEL UP/DOWN (TRACKING ⊕ / ⊖)
- Used to select the CHANNEL.
- Used to adjust the TRACKING while playing the tape.

TAMPER PROOF
- Used to block changes to current operating mode.

FF
- Used to fast forward the tape or to conduct Forward Video Search during playback mode.

STOP
- Used to stop the tape.

PAUSE/STILL
- Used to temporarily stop the tape during recording mode.
- Used to display a still picture during playback mode.

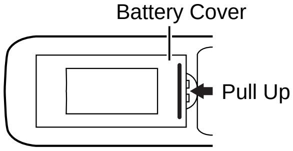
DPSS (⊕ / ⊖)
- Press the (⊕ / ⊖) button to search for the index signal and begin playback automatically.
- Press the (⊕ / ⊖) button to vary the slow motion speed during slow mode.

PROGRAM
- Press the button to enter the Timer Recording mode.

MENU
- Used to select the menu screen.

Remote Control Battery Installation

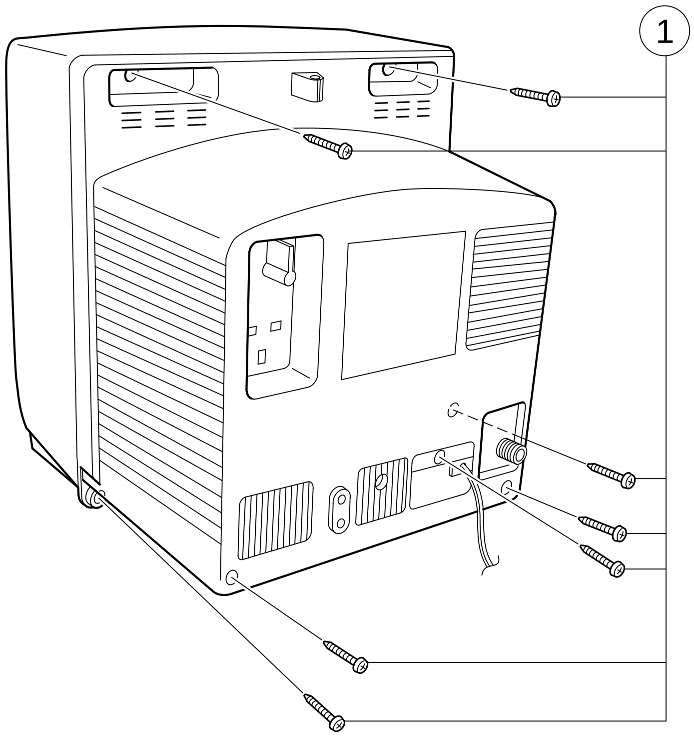
■ **Before using the television, prepare the Remote Control.**

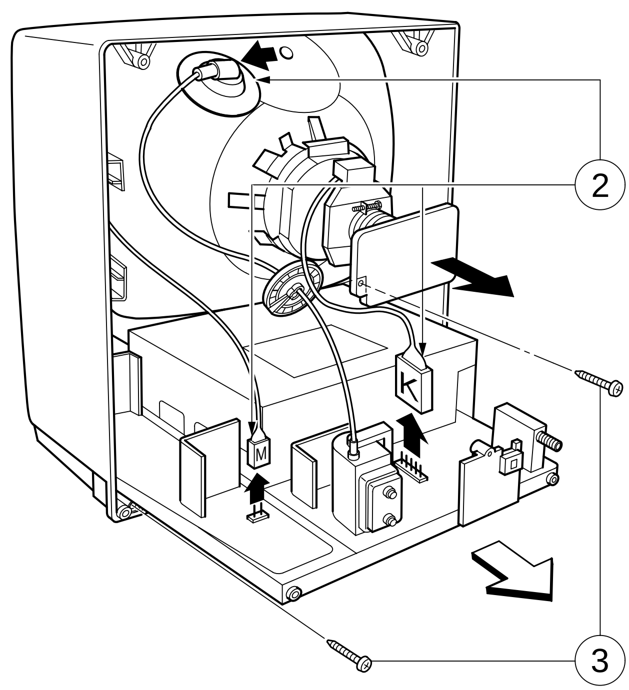


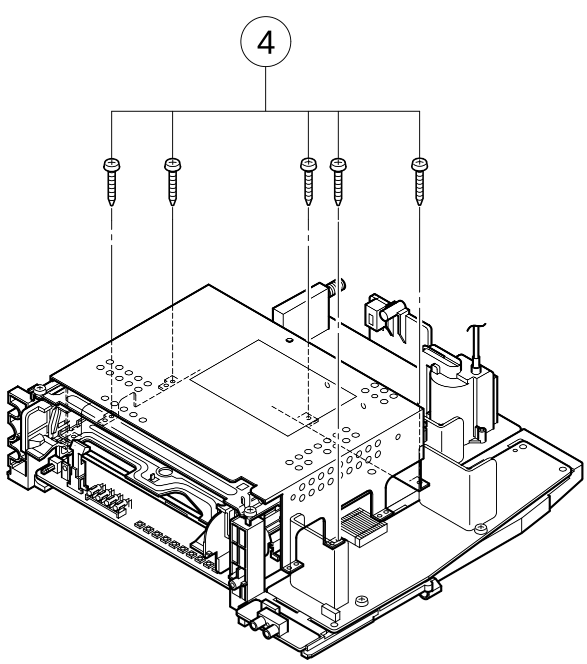
- Remote the battery cover as shown and insert two batteries (size “AA”) making sure the polarity matches the (+) and (–) marks inside the battery conpartment.

DISASSEMBLY AND REASSEMBLY

1. Remove the 7 rear cover fixing screws and detach the rear cover.
2. Take out the anode cap, CRT PWB, connectors K and M, coating earth, Speaker chip fixing screws and others.
3. Take out the main PWB unit and the VCR unit.
4. Remove the 5 VCR fixing screws, and detach the shielding case.

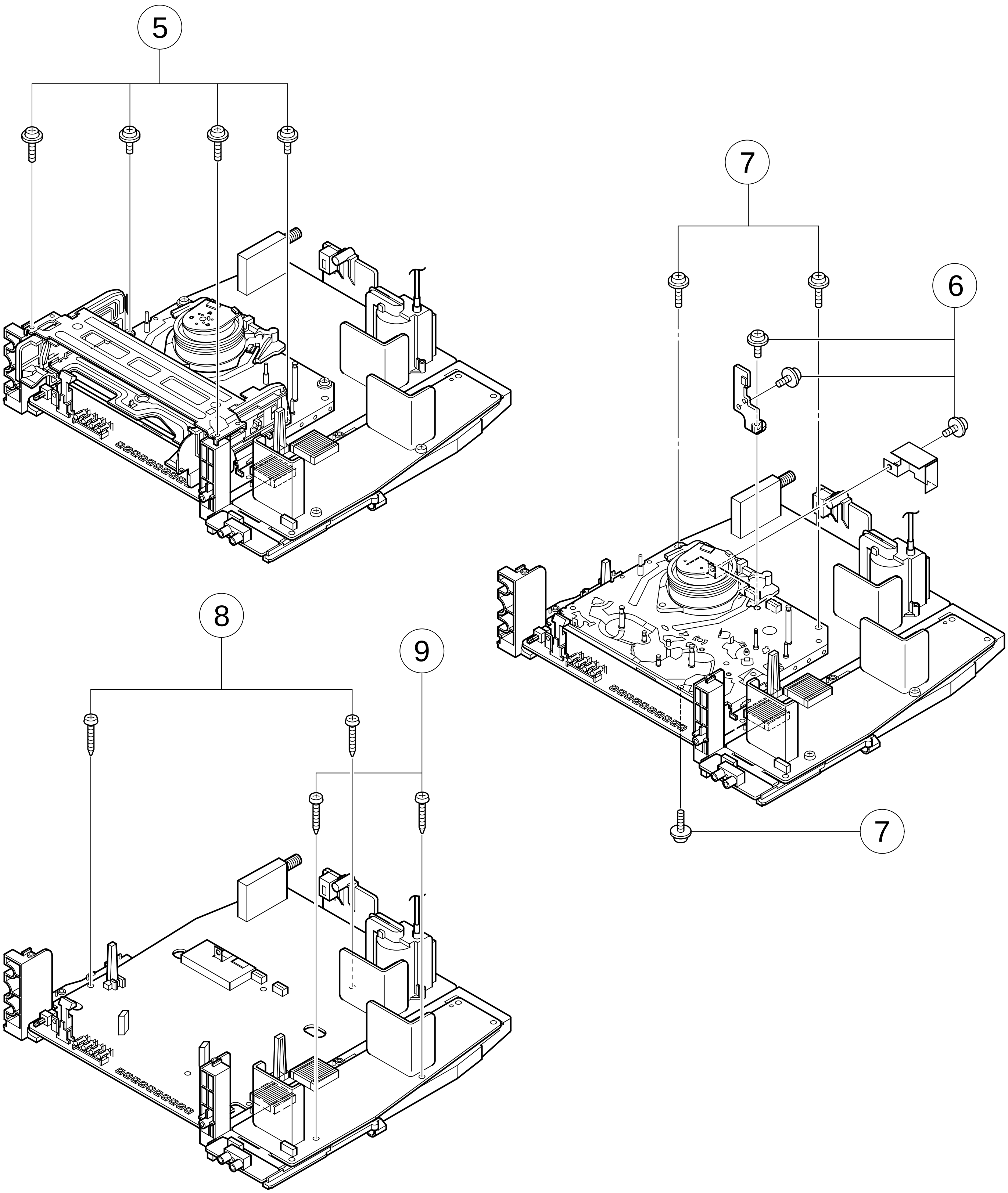






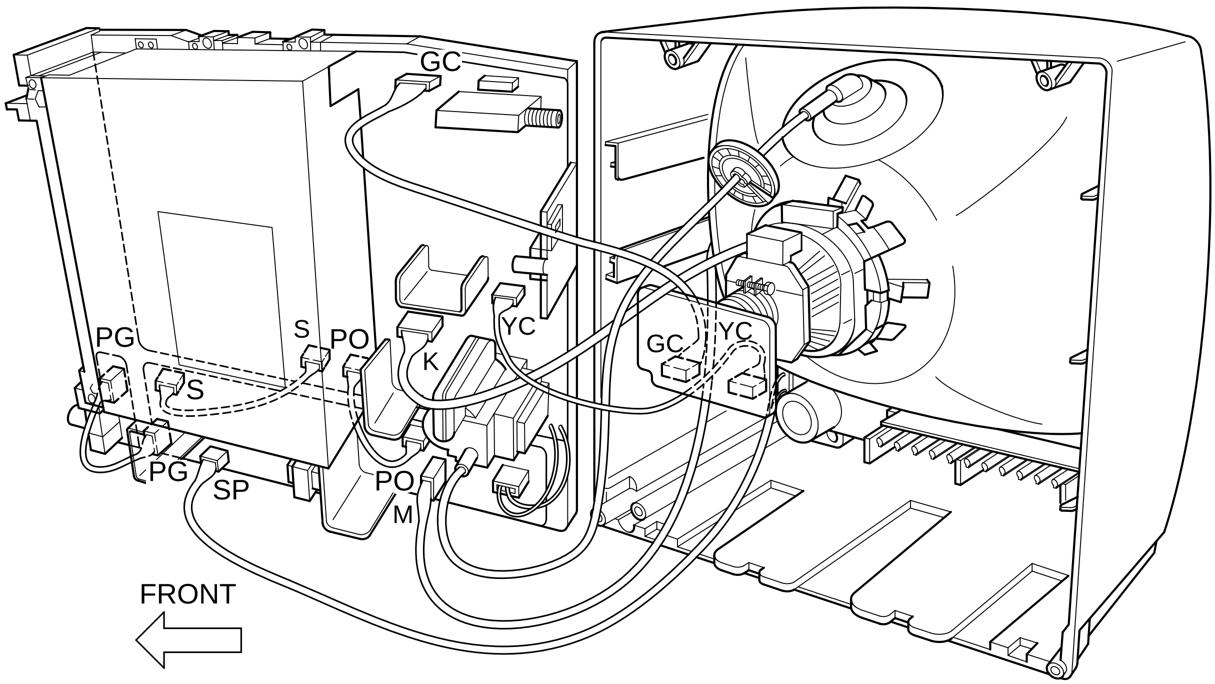
DISASSEMBLY AND REASSEMBLY (Continued)

5. Remove the 4 cassette housing control fixing screws, and detach the cassette housing control.
6. Remove the 2 mechanism chassis angle fixing screws, and remove the 1 head amp shielding case fixing screw.
7. Remove the 3 mechanism chassis fixing screws, and detach the mechanism chassis from the main PWB.
8. Remove the 2 main PWB fixing screws, and detach the main PWB.
9. Remove the 2 power PWB fixing screws, and detach the power PWB



DISASSEMBLY AND REASSEMBLY (Continued)

For servicing any of the components inside, disconnect the lead dressing holder. Position the main PWB unit upright as shown below and connect the leads for starting the services.



INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.
(2) Before performing adjustment, TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, or B+ system, test the X-Radiation protector circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and using the remote controller, set the brightness level and contrast level to maximum.
3. Check the voltage of test point TP653. (It’s voltage should be about 10.1V DC.)
4. Apply external 13.1V DC at TP653 by using an external DC supply. The increased voltage will cause the horizontal oscillator to stop and the TV to shut off.
5. To re-start the oscillator, remove the external DC power supply and short together TP651 and TP652. Once the TV set operates normally again, remove the short between TP651 and TP652.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of Picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with strong air signal or properly tuned in test signal.
3. Set to Service mode on, "Mute" and bus data 1(Y-mute on).
4. The voltage should be approximately 25.4kV (at zero beam). If a correct reading cannot be obtained, check circuitry for malfunctioning components.
   After the voltage test, "Mute" and bus data "0" (Y-mute off).

The L-series SHARP TV/VCR COMBINATION have most of the analog setup adjustments eliminated. Coil and variable resistor adjustments are now performed digitally by using the remote controller or set's volume and channel change function buttons.

Note: There are still a few analog adjustments in the L-series such as 120V adjust, focus, master screen voltage and coils in the picture IF/detector circuit.

Follow the steps below, whenever service adjustment is required. See "Table-B" to determine, if service adjustments are required.

1. Service mode

Berfore putting unit into the service mode, check that customer adjustments are in the normal mode, use the reset function in the video adjust menu to ensure customer controls are in their proper (reset) position.

To enter the service mode

Plug in a television set, during push S2507 (CH-up). When successfuly entered, the service mode will be displayed as shown in **Figure A**.

To exit service mode

Turn off the power or unplug the set.

2. Adjustment Item selection

Once in the service mode, press the channel up or channel down button on the remote controller or at the set (**Table-A**). Select the item you wish to adjust.

3. Data number selection

Press the volume up or down button to adjust the data number in the upper right hand side of the screen.

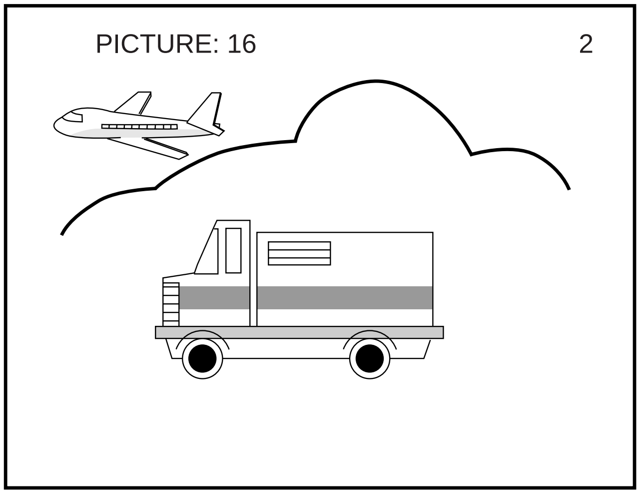


Figure A.

Table - A

ADJUSTMENT ITEM	DATA		ADJUSTMENT COMMENTS
	INTIAL VALUE	RANGE	
PICTURE	16	0~63	
TINT	39	0~77	
COLOR	13	0~63	
BRIGHT	32	0~63	
SHARPNESS	7	0~13	
VERTICAL PHASE	0	0~7	
H-PHASE	20	0~31	
RF-AGC	18	0~63	
V-AMP	32	0~63	
PIF-VCO	40	0~127	
R CUT-OFF	0	0~255	
G CUT -OFF	0	0~255	
B CUT-OFF	0	0~255	
G GAIN	128	0~255	
B GAIN	128	0~255	
Y-MUTE	0	0~2	"0"= Normal raster, "1"= no"Y", "2"= No Vertical
BALANCE	32	0~63	
TEXT BOX	15	0~127	
TEXT PICTURE	20	0~80	
CCD LEVEL	7	0~10	
OPTION	1	0~3	

*No adjustment is required due to proper setting being made by IC2001 automatically.

Table - B

PART REPLACED	ADJUSTMENT		NOTE
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2101.
IC401	X		The adjustment is needed to compensate for characteristics of parts including IC401.
IC2101	X		Initial setting values are written from IC2001. Adjust for best results.
CRT	X		Adjust items related to picture tube only.

SERVICE ADJUSTMENT

VCO Adjustment

1. Connect a digital voltmeter between pin (44) of IC401 and ground.
2. Select a good local channel.
3. Enter the service mode. select adjustment item PIF-VCO and data value "40".
4. Adjust the VCO coil L202 so that the digital voltmeter reads 2.5 volts.
5. Adjustment is complete, remove the voltmeter, return to "normal" mode.

RF AGC Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment item "RF-AGC".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.
   Note 1: You will have to come out of the service mode to select another channel.
   Note 2: Setting the data to "0" will produce a black raster.

Screen Adjustment

1. Select a good local channel.
2. Enter the service mode and select service adjustment item "COLOR" and set the data value to "0" to set the color level to minimum. You may skip this step, if you selected a B/W picture or monoscope pattern.
3. Select service adjustment item "Y-MUTE" and adjust the data value to "1", this turns off the luminance signal (Y-mute).
4. Select service adjustment item "BRIGHT" and set the value to "32".
5. Adjust the master screen cotrol untill raster darkens to the point where raster is barely seen.
6. Adjust service adjustments item "R-CUT OFF" red "G-CUT OFF" green and "B-CUT OFF" blue to obtain a good grey scale with normal whites at low brightness level.
7. Select service adjustment item "MUTE" and reset data to "0". Select service adjustment item "COLOR" and reset data to obtain normal color level.

White Balance Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode. Select service adjustment item "COLOR" and set to "0" (minimum color). "COLOR" does not have to be adjusted if you selected a B/W picture or monoscope pattern.
3. Alternately adjust service adjustment data of "G GAIN" and "B GAIN" untill a good grey scale with normal whites is obtained.
4. Select service adjustment item "COLOR" and adjust data to obtain normal color level.

Picture Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select service adjustment item "PICTURE".
4. Adjust the data value to achieve normal contrast range.

Tint Adjustment

1. Have unit receive a good local channel.
2. Set customer tint control to center of it's range.
3. Enter the service mode and select service adjustment item "TINT".
4. Adjust "TINT" data value to obtain normal flesh tones.

Color Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer color control is set to center position .
3. Enter the service mode and select service adjustment item "COLOR".
4. Adjust "COLOR" data value to obtain normal color level.

Brightness Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select service adjustment item "BRIGHT".
4. Adjust "BRIGHT" data value to obtain normal brightness level.

Vertical-Size adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment item "V-AMP".
3. While observing the top and bottom of the screen, adjust "V-AMP" data value to proper vertical size and linearity.

Horizontal Position Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment item "H-PHASE".
3. Adjust "H-PHASE" data value so that picture is centered.

Caption Position Adjustment (Horizontal)

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment item "TEXT BOX".
3. A black text box appears on the screen. (See **Figure B.** below.)
4. Adjust "TEXT BOX" data value so that text box is positioned in the center of the screen.

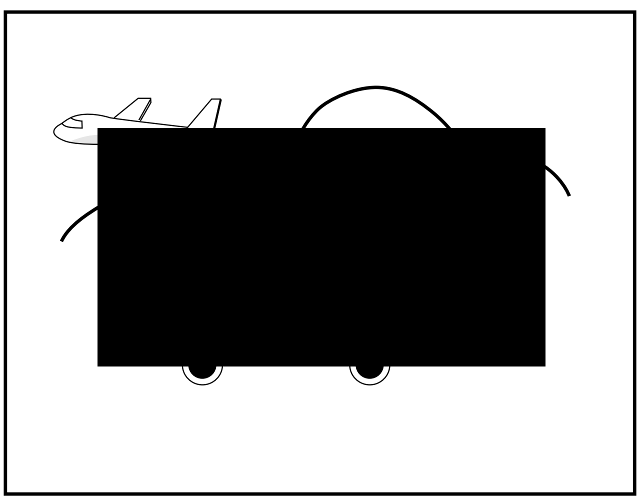


Figure B.

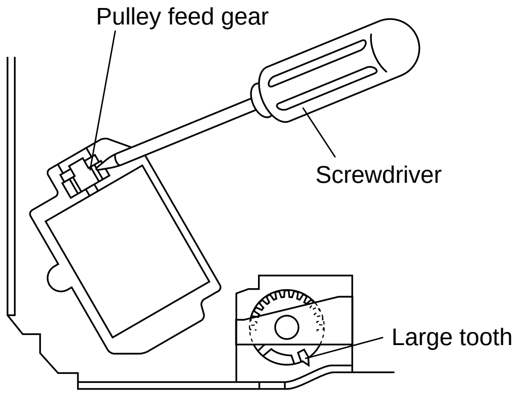
PRECAUTIONS IN REASSEMBLING

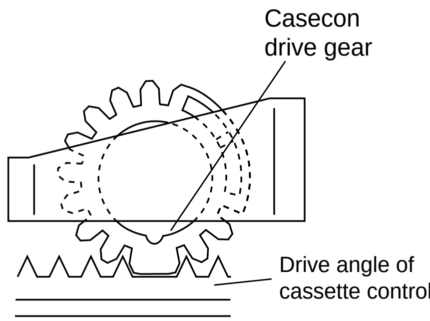
MOUTING THE CASSETTE CONTROLLER

Initial setting is indispensable before placing the cassette controller in the mechanism. The initial setting is made in two ways;electrical and mechanical.

Electrical setting:

Make a short-circuit between TP7701 and TP7702 and be sure that the mechanism is back to its initial setting position (*1).
Now place the cassette controller in position.(This method is used when the mechanism has been already set on its PWB.)





Mechanical setting:

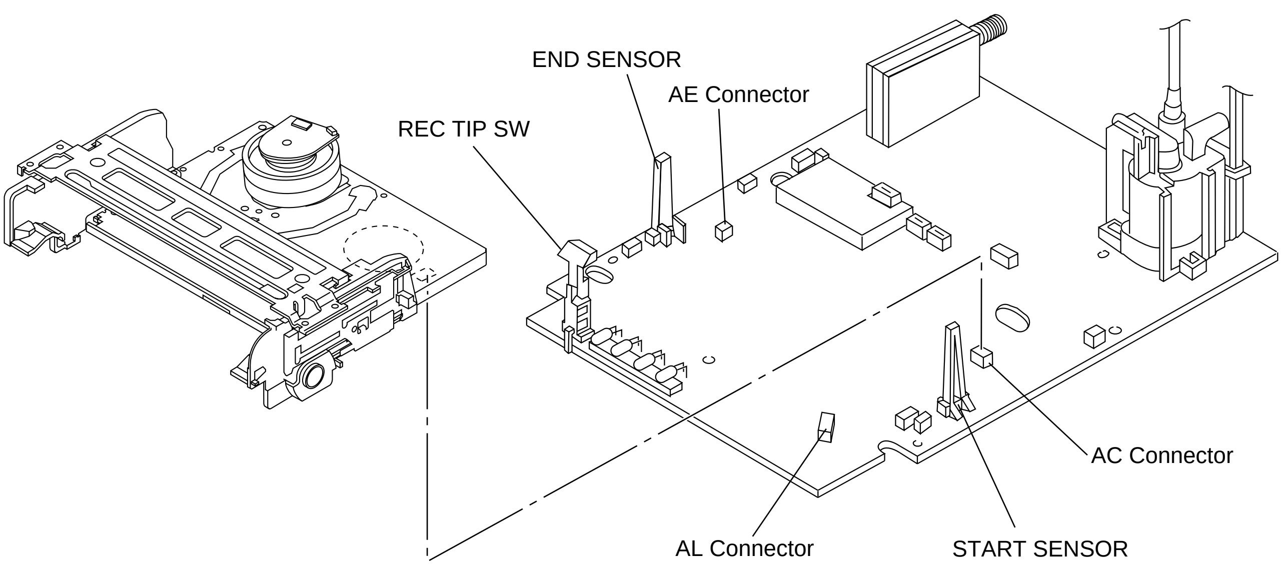
Turn the loading motor's pulley feed gear using a screwdriver and be sure that the mechanism is back to its initial setting position (*1). Now place the cassette controller in position.(This method is applicable for the mechanism alone.)

COUPLING THE MECHANISM TO THE PWB

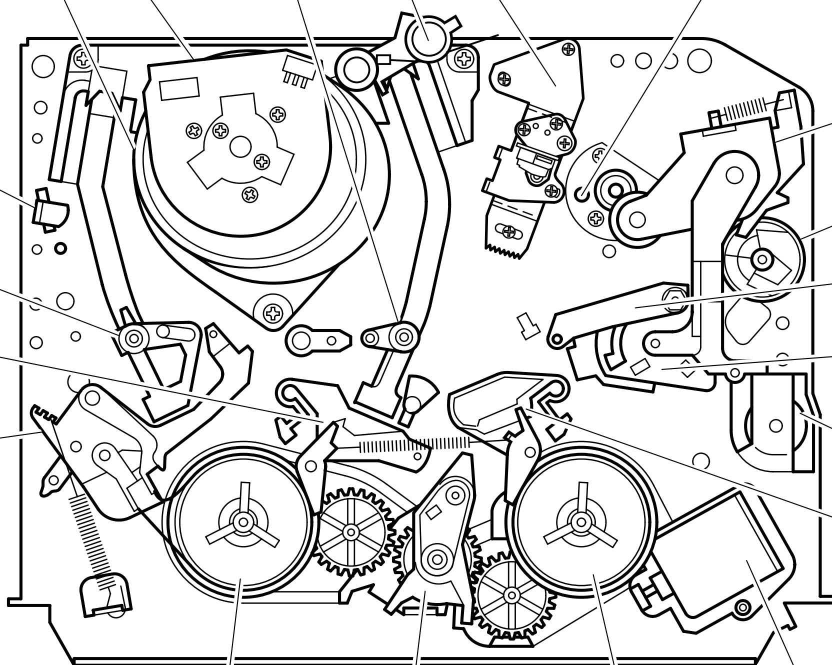
Match the mechanism's projections with the two symbols (round reference and oval sub-reference) on the main PWB. Place the mechanism straight down in position with due care so that the mechanism chassis's outer edges should not damage any parts nearby.
Tighten up the two screws (one for fixing the mechanism and the head amplifier shield, the other on the main PWB's soldering side and located near the loading motor) to fix the mechanism and main PWB. Reconnect the FFC cables (MH and AA, ME and AD, Drum Unit and AH) between the mechanism and main PWB.
Parts to pay attention to:

Start and end sensors	Q7703, Q7704
Record tip switch	S7701

Take special care of the connectors (board to board; AC, AE, AL) between the mechanism and main PWB.

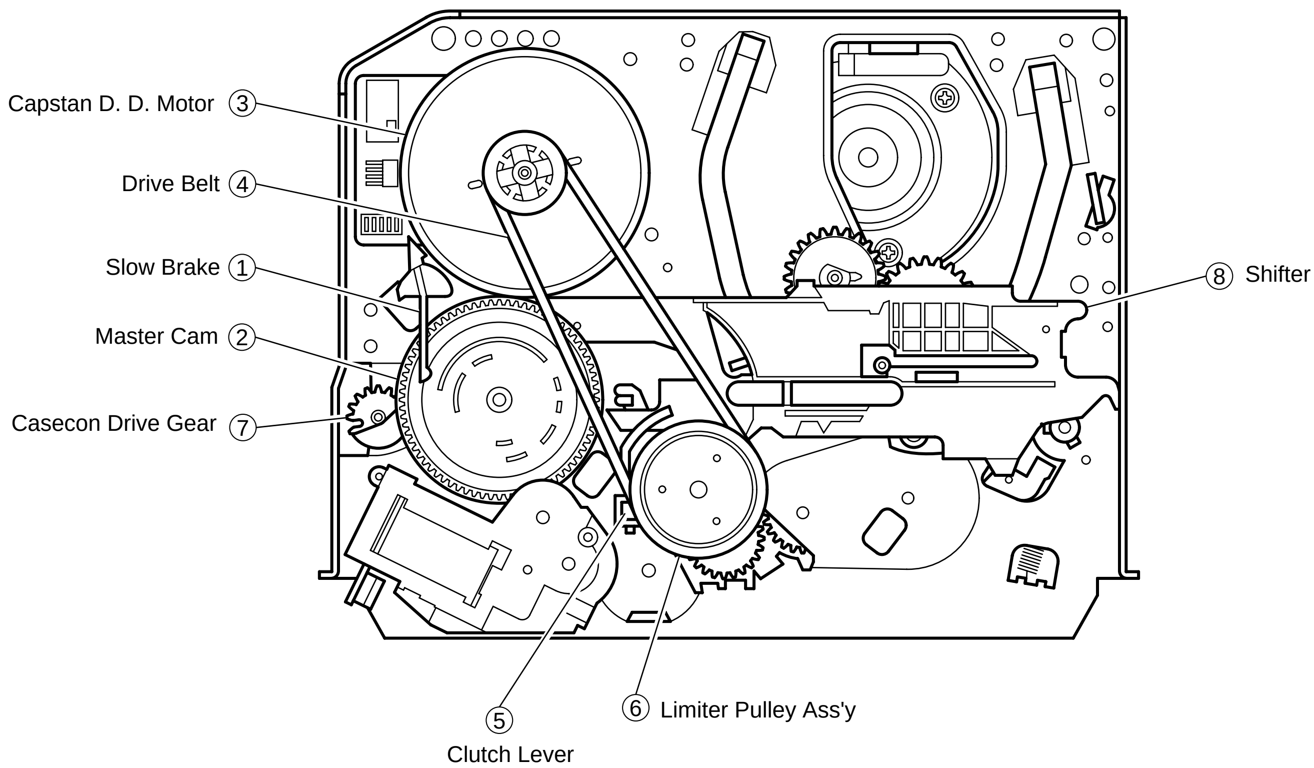


FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)



No.	Function	No.	Function
1.	Full erase head ass'y Erase the old recording on the tape in the recording mode.	13.	Reverse guide lever ass'y Pulls out the tape and controls the tape drive train height with the upper and lower guides.
3.	Tension arm ass'y Detects the tension of tape while running, and brakes the supply reel disk via the tension band.	16.	Pinch roller lever ass'y Press-fits the tape to the capstan during tape running.
7.	Sup Main brake lever Brakes the supply reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	18.	Loading motor A motive power which drives the mechanism. It transmits the power to the master cam and cassette housing control ass'y.
9.	Main take-up brake lever Brakes the take-up reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.		

FUNCTION OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)



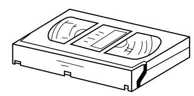
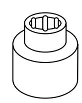
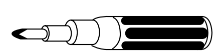
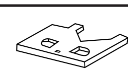
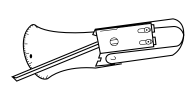
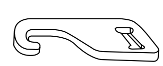
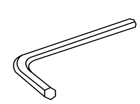
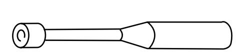
No.	Function	No.	Function
1.	Slow brake Gets in contact with the capstan D.D. motor linking to the master cam in the slow still mode, and brakes it to a certain degree.	6.	Limiter pulley ass’y Transmits the power of the capstan D.D. motor to the reel disk via the drive idler.
3.	Capstan D.D. motor A motive power which runs the tape. It transmits the power via the Drive belt.	8.	Shifter Transmits the operation of the master cam to break ass’y, loading gear, tension arm and clutch lever.
4.	Drive belt Transmits the power to run the tape to the Limiter pulley.	9.	Take-up loading gear Shifts the take-up pole base and guide roller via the loading gear T, and applies the tape around the drum assembly, as well as transmits the power to the loading gears.

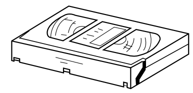
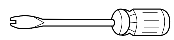
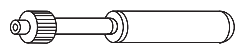
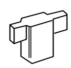
ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS

The explanation given below relates to the on-site general service (field service) but it does not relates to the adjustment and replacement which need high-grade equipment, jigs and skill. For example, the drum assembling, replacement and adjustment service must be performed by the person who have finished the technical courses.

MECHANISM CONFIRMATION ADJUSTMENT JIG

So as to perform completely the mechanism adjustment prepare the following special jigs. So as to maintain the initial performance of the machine the maintenance and check are necessary. Utmost care must be taken so that the tape is not damaged. If adjustment needs any jig, be sure to sue the required jig.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1.	Torque Cassette Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up for measuring tape back tension.
2.	Torque Gauge	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
		JiGTG1200	CN		
3.	Torque Gauge Head	JiGTH0006	AW		
4.	Torque Driver	JiGTD1200	CB		When fixing any part to the threaded hole using resin with screw, use the jig. (Specified torque 5 kg)
5.	Master Plane Jig and Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height.
		JiGMP0001	BY		
6.	Tension Gauge	JiGSG2000	BS		There are two gauges used for the tension measurements, 300 g and 2.0kg.
		JiGSG0300	BF		
7.	Pinch pressing force measuring jig	JiGADP003	BK		This Jig is used with the tension gauge. Rotary transformer clearance adjusting jig.
8.	Hex Wrench (1.2 mm)	JiGHW0012	AE		These Jigs are used for loosening or tightening special hexagon type screws.
	Hex Wrench (1.5 mm)	JiGHW0015	AE		
9.	Reverse guide height adjusting box driver	JiGDRiVER11055	AR		This Jig is used for height adjustment of the reverse guide (for reverse guide height adjustment).

<table>
<tr><th>No.</th><th>Jig Item</th><th>Part No.</th><th>Code</th><th>Configuration</th><th colspan="4">Remarks</th></tr>
<tr><td rowspan="6">10.</td><td rowspan="6">Alignment Tape</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="4">These tapes are especially used for electrical fine adjustment.</td></tr>
<tr><td>Video</td><td>Audio</td><td>Hi-Fi Audio</td><td>Track</td></tr>
<tr><td rowspan="2">VROATSV</td><td rowspan="2">CD</td><td rowspan="2"></td><td>525 Monoscope</td><td>7k</td><td>—</td><td>58µm</td></tr>
<tr><td>NTSC Color Bar</td><td>1k</td><td>—</td><td>58µm</td></tr>
<tr><td>VRONBZGS</td><td>CB</td><td></td><td>525 Monoscope</td><td>7k</td><td>—</td><td>46/58 µm</td></tr>
<tr><td>VROEBZCS</td><td></td><td></td><td>525 Monoscope</td><td>1k</td><td>—</td><td>19µm</td></tr>
<tr><td>11.</td><td>Guide roller height adjustment drive</td><td>JiGDRiVERH-4</td><td>AP</td><td></td><td colspan="4">This screwdriver is used for adjusting the guide roller height.</td></tr>
<tr><td>12.</td><td>X value adjustment gear type screw driver</td><td>JiGDRiVER-6</td><td>BM</td><td></td><td colspan="4">For X value adjustment</td></tr>
<tr><td>13.</td><td>Reverse Guide Height Adjusting Jig</td><td>JiGRVGH-F18</td><td>BU</td><td></td><td colspan="4">This Jig is used for height adjustment of the reverse guide.</td></tr>
</table>

MAINTENANCE CHECK ITEMS AND EXECUTION TIME

Perform the maintenance with the regular intervals as follows so as to maintain the quality of machine.

Maintained / Parts	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	3000 hrs.	Possible symptom encountered	Remarks
Guide roller ass'y	□	□	□	□	□	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Sup Guide Shaft	□	□	□	□	□		Clean tape contact part with the specified cleaning liquid.
Retaining guide	□	□	□	□	□		
Slant pole	□	□	□	□	□		
Full-erase head	□	□	□	□	□	Color and beating	Clean tape contact area with the specified cleaning liquid.
A/C head	□	□	□	□	□	Small sound or sound distortion	
Upper and lower drum ass'y	□	○□	□	○□	○□	Poor S/N ratio, no color Poor flatness of the envelope with alignment tape	
Capstan D.D. Motor	□	□	□	□	○	No tape running, uneven color	
Pinch roller	□	□	□	□	○	No tape running, tape slack	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		□		○	□	No tape running, tape slack, no fast forward/ rewind motion	
Tension band ass'y					○	Screen swaying	
Loading Motor					○	Cassette not loaded or unloaded	
Idler ass'y				○		No tape running, tape slack	
Limiter pulley		□△		□○	□△		
Supply/take-up Main brake levers				○		Tape slack	

NOTE: ○: Part replacement. □: Cleaning △: Oil refilling
<Specified> Cleaning liquid Industrial ethyl alcohol

* This mechanism does not need electric adjustment with variable resistor. Check parts. If any deviation is found, clean or replace parts.

REMOVING AND INSTALLING THE CASSETTE HOUSING

• Removal

1. In the cassette eject mode, remove the cassette.
2. Unplug the power cord.
3. Remove in the following numerical order.
   a) Remove two screws ①.
   b) Slide and pull up the cassette housing control.

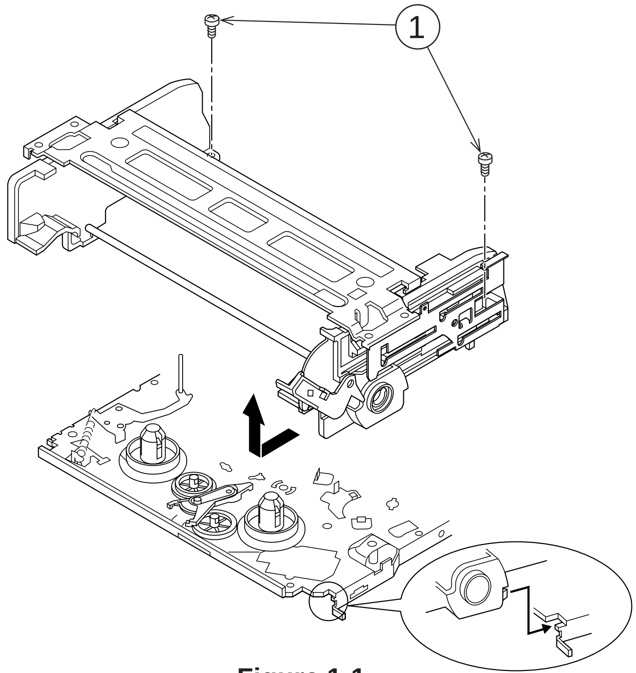


Figure 1-1.

• Reassembly

1. Before installing the cassette housing control, short-circuit TP7701 and TP7702 provided at the left of the main PWB, prug in the power cord. The casecon drive gear turns and stops when the positioning mark appears. Engage two teeth of casecon drive gear with the three teeth of casecon drive angle gear, and set on the mechanism chassis as shown below.

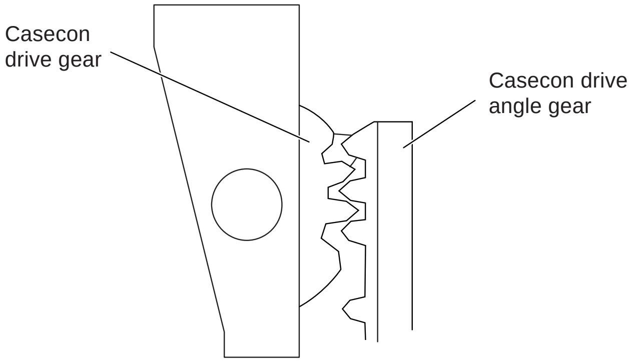


Figure 1-2.

2. Install in the reverse order of removal.

Notes:

1. When fitting the S/E sensor holder to the cassette controller frame L/R, take care.
2. Misengagement of teeth of casecon drive gear and drive angle gear causes malfunction. (The cassette cannot be set, load and ejection are repeated).
3. In the case when you use the magnet screw driver, never approach the magnet driver to the A/C head, FE head, and drum.
4. When installing or removing, take care so that the cassette housing control and tool do not contact the guide pin or drum.
5. After installing the cassette housing control once perform cassette loading operation.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Short-circuit TP7701 and TP7702.
2. Plug in the power cord.
3. Turn on the power.
4. Open the lid of a cassette tape by hand.
5. Hold the lid with two pieces of vinyl tape.
6. Set the cassette tape in the mechanism chassis.
7. Stabilize the cassette tape with a weight (500g) to prevent floating.
8. Perform running test.

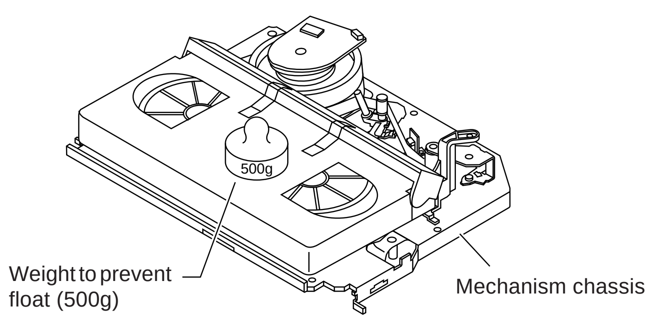


Figure 1-3.

Notes:

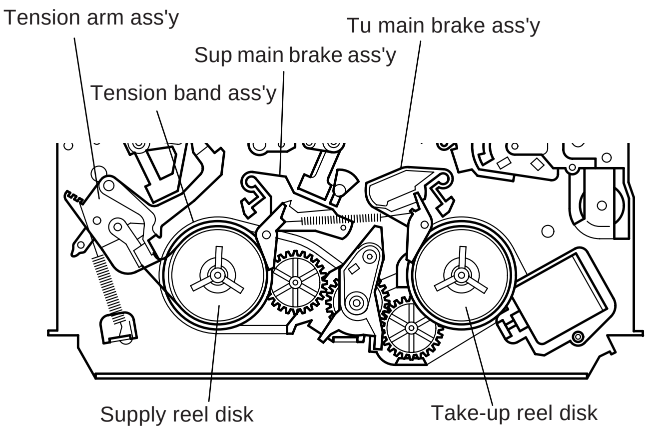
1. The weight should not be more than 500g.
2. Take care not to damage the tape when the Cassette is set in the mechanism shassis or taken out of it because the supply/take-up poles are shifted foward the tape loading direction in the EJECT position.

REEL DISK REPLACEMENT AND HEIGHT CHECK

- **Removal**

1. Remove the cassette housing control assembly.
2. Pull the tension band out of the tension arm ass'y.
3. Remove the Sup/Tu main brake ass'y.
4. Open the hook at the top of the reel disk, and remove the reel disk.

Note:
Take care so that the tension band ass'y and main brake ass'y (especially soft brake) are not deformed.



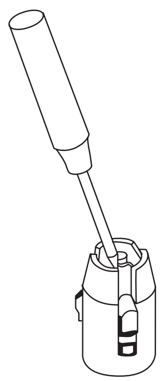


Figure 1-4.

Note:
When the tension band ass'y is pressed in the direction of the arrow for removal, the catch is hard to be deformed.

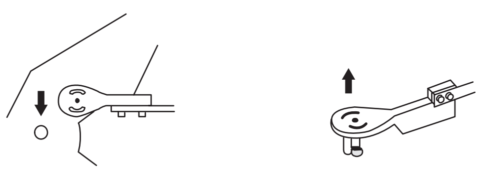


Figure 1-5.

- **Reassembly (Supply reel disk)**

1. Clean the reel disk shaft and apply grease (SC-141) to it.
2. Match the phases of reel disk and reel relay gear, and set the new reel disk.
3. After checking the reel disk height, wind the tension band ass'y around the reel disk, and insert into the hole of tension arm ass'y.
4. Assemble the Sup main brake ass'y.

Notes:

1. When installing the reel disk, take due care so that the tension band ass'y is not deformed and grease does no adhere.
2. Do not damage the Sup main brake ass'y. Be careful so that grease does not adhere to the brake surface.

- **Reassembly (Take-up reel disk)**

1. Clean the reel disk shaft and apply grease (SC-141) to it.
2. Align the phase of the reel disk to that of the reel relay gear and to install a new take-up reel disk onto the shaft.
3. Check the reel disk height and reassemble the take-up main brake ass'y.

Note:

1. Take care so that the Tu main brake ass'y is not damaged. Take care so that grease does not adhere the brake surface.
2. After reassembly, check the video search rewind back tension (see page 27), and check the brake torque (see page 29).

- **Height checking and adjustment**

Note:

1. Set the master plane with due care so that it does not contact the drum.
2. When putting the master plane, shift the reverse guide a little in the loading direction. Care must be taken since excessive shift results in damage.

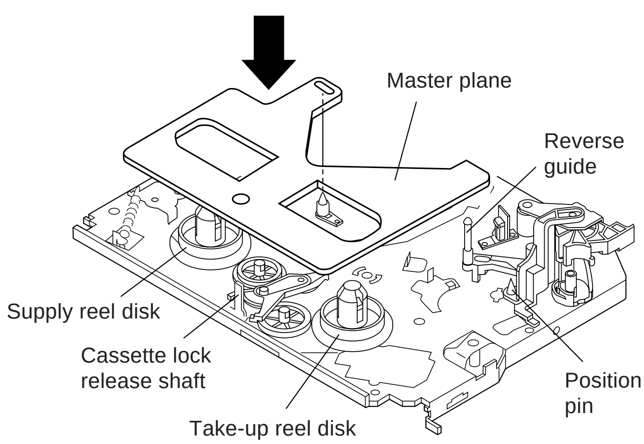


Figure 1-6.

Note:

- Check that the reel disk is lower than part A but higher than part B. If the height is not correct, readjust the reel disk height by changing the poly-slider washer under the reel disk.

Note:
Whenever replacing the reel disk, perform the height checking and adjustment.

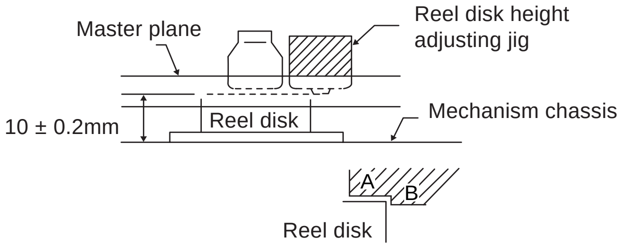


Figure 1-7.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- **Remove the cassette housing control assembly.**

- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**

- **Setting**

1. Set a torque gauge to zero on the scale. Place it on the take-up reel disk.
2. Press the FF button.
3. To calculate the remaining capacity of the play back mode, slowly rotate the supply reel disk, and then shift it into the forward mode.

- **Checking**

1. Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the CW direction.
2. Make sure that the indication of torque gauge is not less than 30mN·m (306gf·cm).

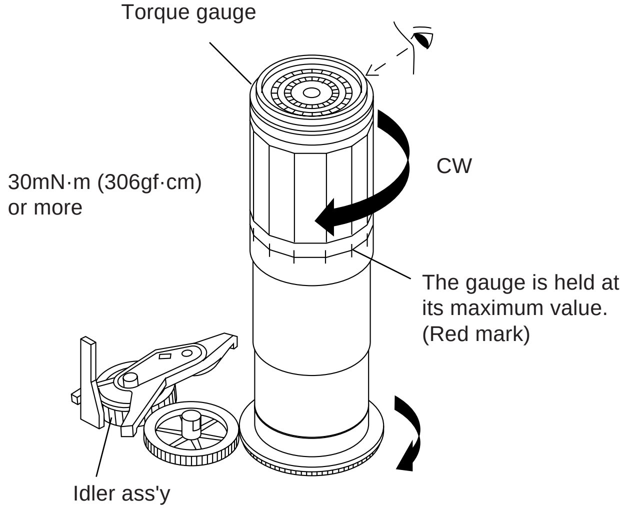


Figure 1-8.

- **Adjustment**

1. If the FF winding-up torque is less than the specified value, clean the capstan D.D. motor pulley, drive belt, and limiter pulley with cleaning liquid, and check again.
2. If the torque is less that the set value, replace the reel belt.

Notes:
1. Hold the torque gauge by hand so that it is not moved.
2. Do not keep the reel disk in lock state. Do not allow long-time measurement.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- **Remove the cassette housing control assembly.**

- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**

- **Setting**

1. Set a torque gauge to zero on the scale. Place it on the supply reel disk.
2. Press the rewind button.
3. To calculate the remaining capacity, slowly rotate the take-up reel disk, and then shift it into the rewind mode.

- **Checking**

1. Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the CCW direction.
2. Make sure that the indication of torque gauge is not less than 30mN·m (306gf·cm).

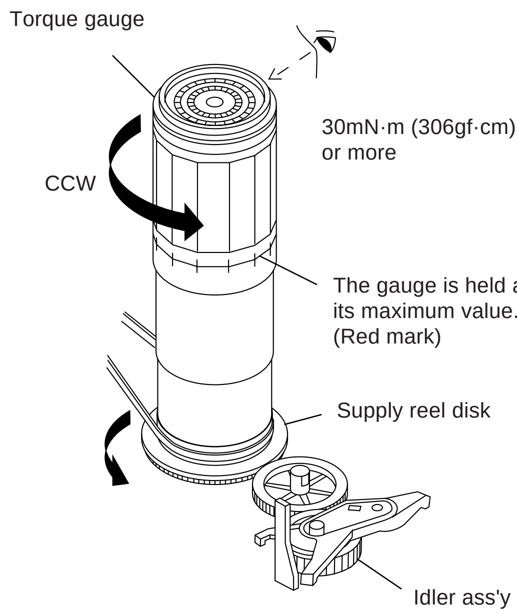


Figure 1-9.

- **Adjustment**

1. If the rewind winding-up torque is less than the specified value, clean the capstan D.D. motor pulley, drive belt, and limiter pulley with cleaning liquid, rewind again, and check the winding-up torque.
2. If the winding-up torque is still out of range, replace the drive belt.

Notes:
1. Hold the torque gauge by hand so that it is not moved.
2. Do not keep the reel disk in lock state. Do not allow long-time measurement.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN RECORD/PLAYBACK MODE

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord.**
- **Turn on the power.**
- **Open the cassette torque meter lid, and fix it with tape.**
- **Load the cassette torque meter into the unit.**
- **Put the weight (500g) on the cassette torque meter.**
- **Turn on the power switch.**
- **Press the picture record button, and set EP picture record mode (x3).**

Set value EP6.9 ± 2.5mN·m (70 ± 25gf·cm)

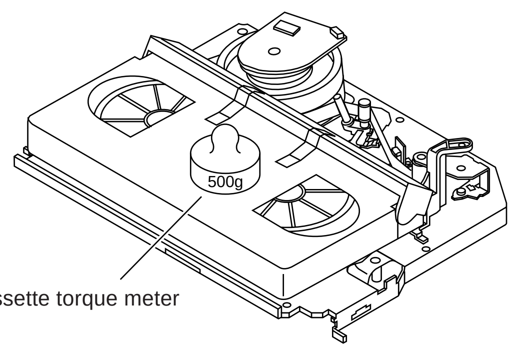


Figure 1-10.

- **Checking**

1. Make sure that value is within the setting 6.9 ± 2.5mN·m (70 ± 25gf·cm).
2. The winding-up torque fluctuates due to variation of rotation torque of limiter pulley ass'y. Read the center value of fluctuation as setting.
3. Set the EP record mode (x3) and make sure that the winding-up torque is within setting.

- **Adjustment**

If the playback winding-up torque is not within the setting, replace the limiter pulley assembly.

Note:
When the torque cassette is set, put a weight (500g) to prevent rise.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**
- **Setting**
  Press the playback button and rewind button to set the video search rewinding mode.
- **Checking**

1. Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 1 to 2 seconds) and check that the torque is within the set value 14.0 ± 3.9mN·m. (144 ± 40gf·cm)

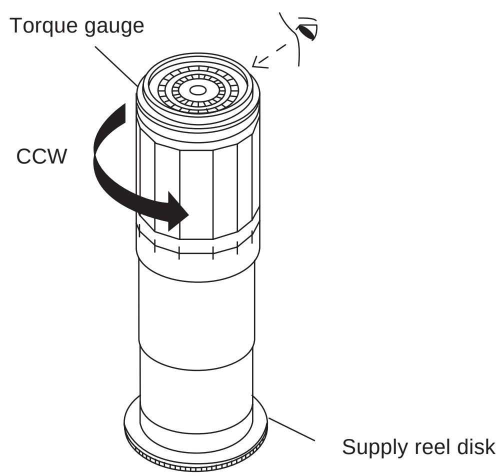


Figure 1-11.

Note:
Surely put the torque gauge on the reel disk to measure. If the torque gauge is raised, accurate measurement is impossible.

- **Adjustment**

1. If the rewinding playback winding-up torque is not within the setting, replace the limiter pulley assembly.

Note:
The winding-up torque fluctuates due to variation of rotation torque of supply reel disk. Read the center value of fluctuation as setting.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**
- **Checking**

1. After pressing the play button, press the rewind button, and set the video search rewind mode.
2. Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 3.4 ± 1.5mN·m (35 ± 15gf·cm).

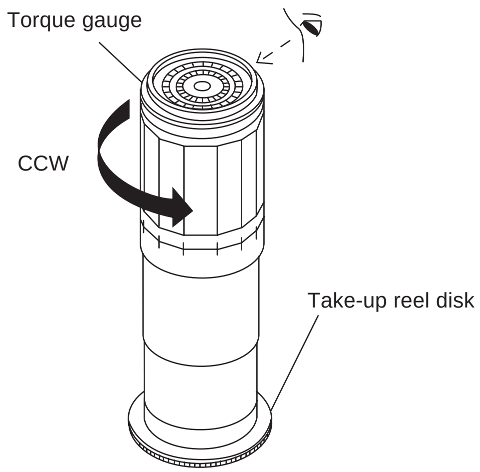


Figure 1-12.

Notes:
Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

CHECKING THE PINCH ROLLER PRESSURE

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**
- **Checking**

Press the play button to set the playback mode.

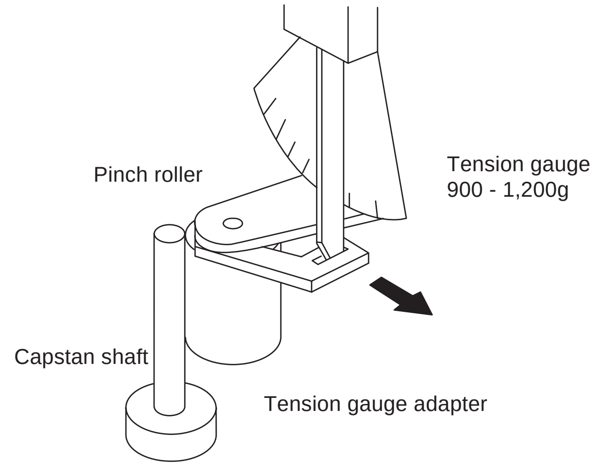


Figure 1-13.

1. Detach the pinch roller from the capstan shaft. Do not separate excessively. Or the pinch lever and pinch double action lever may disengage.
2. Engage the tension gauge adapter with the pinch roller shaft, and pull in the arrow direction.
3. Gradually return the pinch roller, and measure the pulling force when the pinch roller contacts the capstan shaft.
4. Make sure that the measured value is within setting 0.9 to 11.8 N (900 to 1,200g).

CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**
- **Setting**

1. Open the cassette tape (T-120), and fix with tape.
2. Set the cassette tape in loading state.
3. Put the weight (500g) on the cassette tape.
4. Make the adjustment with the beginning of a T-120 tape.

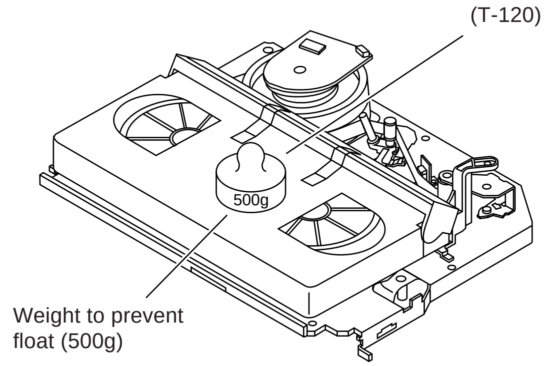
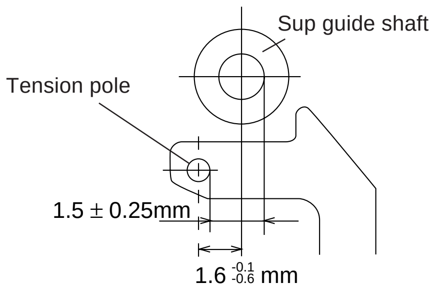


Figure 1-14.

- **Checking**

1. Set a cassette tape, push the REC button to place the unit in the SP record mode. Now check the tension pole position.

2. Visually check to see if the right edge of the tension pole is within the 1.5 ± 0.25mm from the right edge of the Sup guide shaft.



Make the adjustment with the beginning of a T-120 tape.

Figure 1-15.

At left side from the center line

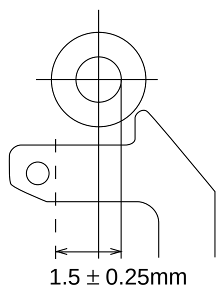


Figure 1-16.

Insert the slotted screwdriver in the tension pole adjuster, and rotate counterclockwise.

At right side from the center line

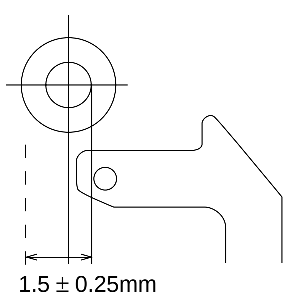


Figure 1-17.

Insert the slotted screwdriver in the tension pole adjuster, and rotate clockwise.

Tension pole adjuster adjusting range

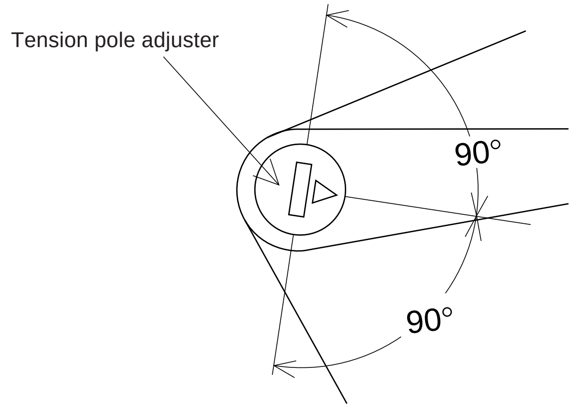


Figure 1-18.

Adjust so that the delta mark of tension pole adjuster is within 90° range (left, right).

CHECKING AND ADJUSTMENT OF RECORD/ PLAYBACK BACK TENSION

- **Remove the cassette housing control assembly.**
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**
- **Setting**

1. Open the torque cassette meter and fix with tape.
2. Set the cassette tape in loading state.
3. Put the weight (500g) on the cassette torque meter.

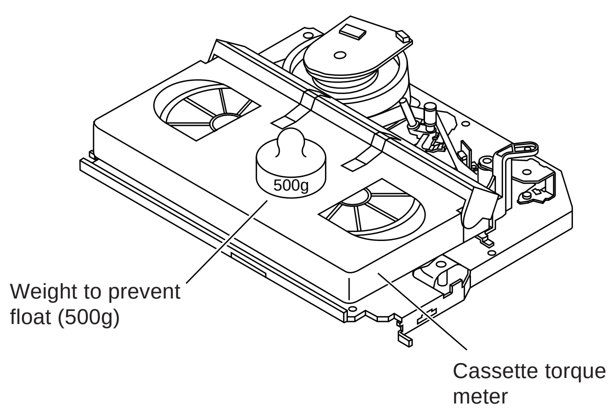


Figure 1-19.

- **Checking**

1. Push the REC button to place the unit in the SP record mode.
2. At this time ascertain that the back tension is within the setting (36.5 to 52g·cm) by seeing the indication of torque cassette meter.

- **Adjustment**
1. If the indication of torque cassette meter is lower than the setting, shift the tension spring engagement to the part A.
2. If the indication of torque cassette meter is higher than the setting, shift the tension spring engagement to the part B.

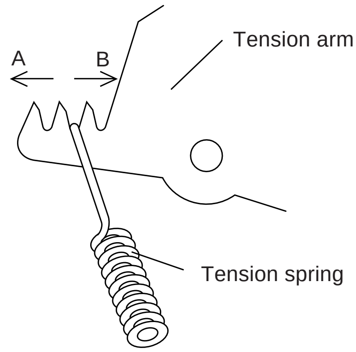
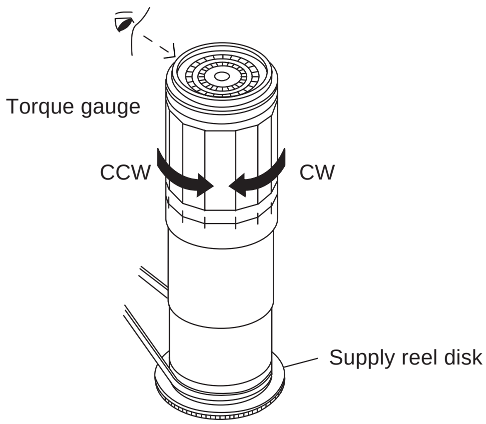


Figure 1-20.

CHECKING THE BRAKE TORQUE

- **Checking the brake torque at the supply side**



CCW:	3.9~9.8mN·m (40~100gf·cm)
CW:	8.8~23.5mN·m (90~240gf·cm)

Figure 1-21.

- **Remove the cassette housing control assembly.**

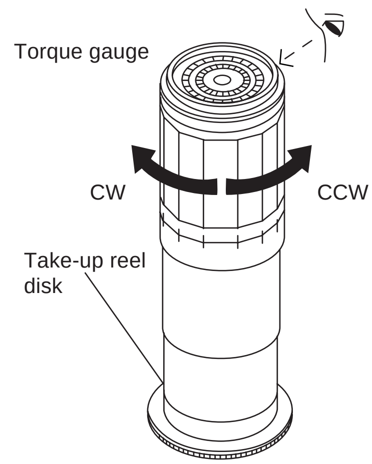
- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**

- **Setting**
1. Set a torque gauge to zero on the scale. Place it on the supply reel disk.
2. Switch from the FF mode to the STOP mode.
3. Disconnect the power cord.

- **Checking**

Turn the torque gauge at a rate of about one turn/2 sec in the CW direction/CCW direction with respect to the supply reel disk so that the reel disk and torque gauge pointer rotate at equal speed, and make sure that the value is within the setting (CW direction: 8.8 to 23.5mN·m (90 to 240gf·cm); CCW direction: 3.9 to 9.8mN·m (40 to 100gf·cm).

- **Checking the brake torque at the take-up side**



CCW:	8.8~23.5mN·m (90~240gf·cm)
CW:	4.9~11.8mN·m (50~120gf·cm)

Figure 1-22.

- **Remove the cassette housing control assembly.**

- **After short-circuiting TP7701 and TP7702 provided at the left on the main PWB, plug in the power cord, then turn on the power.**

- **Setting**
1. Switch from the FF mode to the STOP mode.
2. Disconnect the power cord.
3. Set a torque gauge to zero on the scale. Place it on the take-up reel disk.

- **Checking**
1. Turn the torque gauge at a rate of about one turn/2 sec in the CCW direction/CW direction so that the reel disk and torque gauge pointer rotates at equal speed and make sure that the value is within the setting (CCW direction: 8.8 to 23.5mN·m (90 to 240gf·cm), CW direction: 4.9 to 11.8mN·m (50 to 120gf·cm).

2. Adjustment of the brake torque at the supply side and the take-up side
- Unless the supply side brake torque or take-up side brake torque is within the setting, clean the felt surface of reel disk (supply, take-up) brake lever, check again the brake torque.
- If value cannot be set within the setting yet, replace the main brake ass'y or main brake spring.

REPLACEMENT OF A/C (Audio/Control) HEAD

1. Remove the cassette housing control assembly.
2. In unloading state, unplug the power cord.

- **Removal**

1. Remove the screws ①②③, Azimuth screw and Tilt screw.
2. Unsolder the PWB fitted to the A/C head

Notes:

1. When replacing, never touch the head. If you touched, clean with the cleaning liquid.
2. When removing the screw ③, take care so that the spring may spring out.

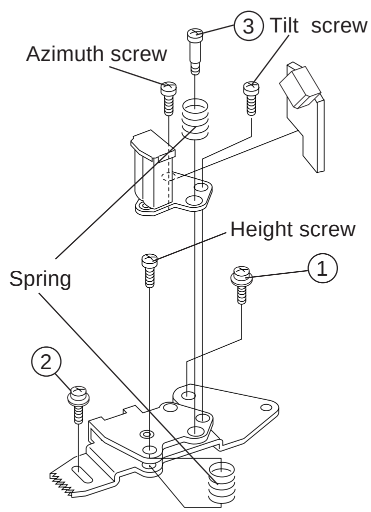
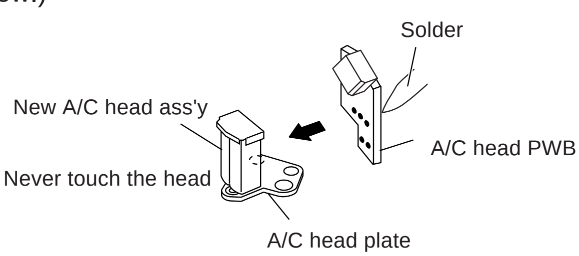


Figure 1-23.

- **Replacement**

1. Solder the removed PWB to the new head assembly.
2. Adjust the height from the A/C head arm (lower surface) to the A/C head plate to 10.8mm with slide calipers. (3 places of azimuth screw section, tilt screw section and A/C head front section) (See the figure below.)



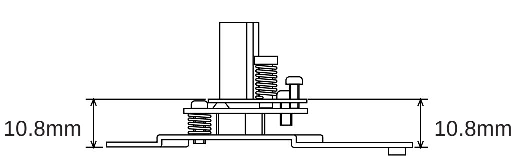


Figure 1-24.

3. Align the left end of gear of A/C head arm with the punched mark of chassis, tentatively tighten the screws ① and ② so as to ensure smooth motion of A/C head arm. Tentative tightening torque must be 0.15 to 0.20 N·m (1.5 to 2.0kgf·cm).

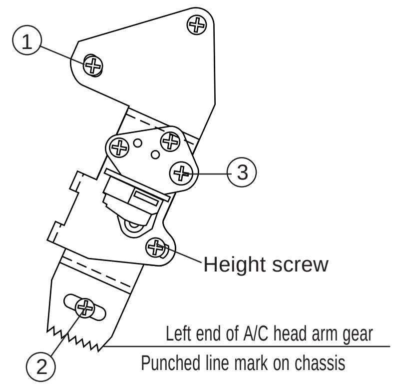


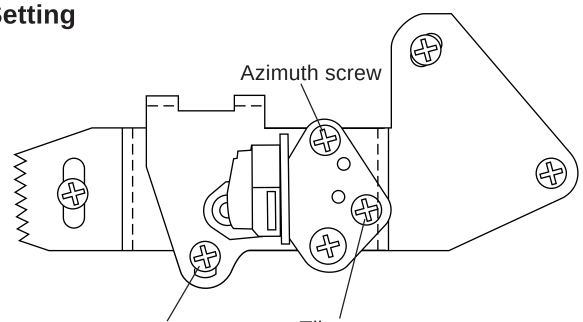
Figure 1-25.

Note:

1. If the screws ① and ② are tighten tentatively too loose, the azimuth and height of A/C head may change when they are finally tightened. Therefore care must be taken.
2. After completion of A/C head be sure to adjust tape running. (Execute the running adjustment by the method described in Page 32, 33.)

A/C HEAD HEIGHT ROUGH ADJUSTMENT

- **Setting**



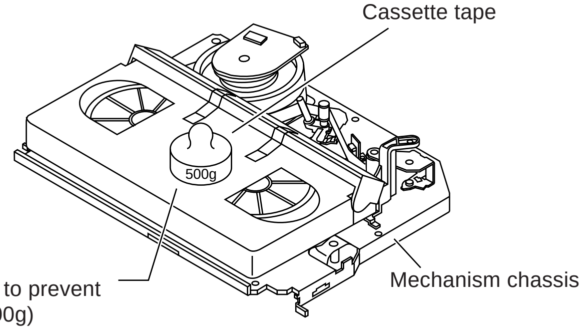


Figure 1-26.

1. Set the cassette tape in the unit.
2. Press the PLAY button to put the unit in the playback mode.
3. Roughly adjust the height of the A/C head by turning the height screw until the tape is in the position shown below.

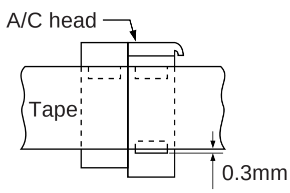


Figure 1-27.

- **Adjustment**

Adjust the height screw visually so that the control head is visible 0.3mm below the bottom of the tape.

HEIGHT ADJUSTMENT OF REVERSE GUIDE

1. Adjust the height from the mechanism chassis to the reverse guide lower flange to 13.38mm, using the reverse guide height adjustment jig, in tape loading state. (Refer to Figure 1-28 (a) (b).)

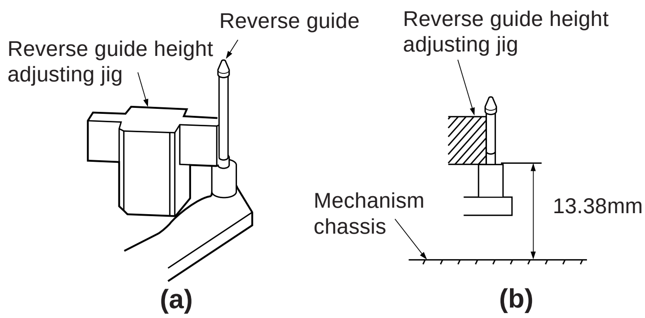


Figure 1-28.

2. Rotate counterclockwise the reverse guide height adjustment nut 1/10 turn. (For height adjustment use the reverse guide height adjustment box driver (JiGDRiVER11055)).

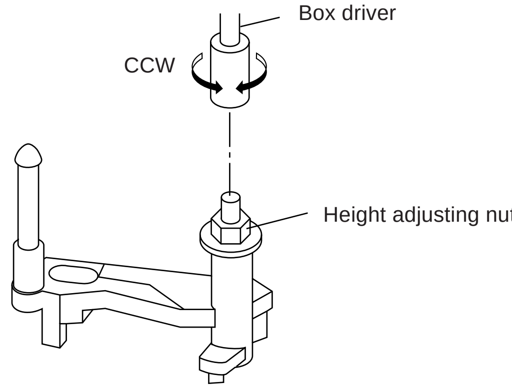
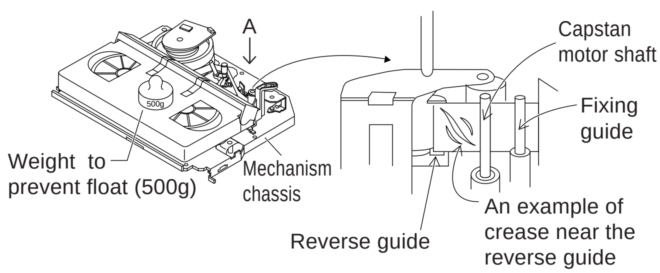


Figure 1-29.

3. Set the tape, and check for tape crease near the reverse guide in the playback mode.
   If crease is found, turn the reverse guide adjustment nut to remove crease. (As for crease check refer to Figure 1-30.)



* Check for crease from the A direction.

Figure 1-30.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Tape run rough adjustment
   ① Remove the cassette housing control assembly.
   ② After shortcircuiting TP7701 and TP7702 provided at the main PWB, plug in the power cord, then turn on the power.
   ③ Check and adjust the position of the tension pole. (See page 28.)
   ④ Check and adjust the video search rewind back tension. (See page 27.)
   ⑤ Connect the oscilloscope to the test point for PB CHROMA envelope output (TP3301). Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP3302).
   ⑥ Set the alignment tape (VRONBZGS) to play. (Put a 500g weight on the cassette tape to prevent lift of cassette tape.)

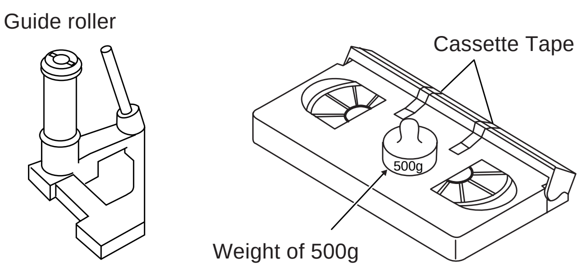


Figure 1-31.

   ⑦ Press the tracking button (+), (–) and change the envelope waveform from max to min and from min to max. At this time make sure that the envelope waveform changes nearly parallel.
   ⑧ Unless the envelope waveform changes nearly parallel, adjust the height of supply side and take-up side guide roller so that the envelope waveform changes nearly parallel. (For envelope adjustment procedure refer to Figure 1-35.)
   ⑨ Turn the tilt screw to remove the tape crease at the fixing guide flange.
   Play back the tape and check for tape crease at the fixing guide flange.
   (1) If there is no tape crease
   Turn the tilt screw clockwise so that tape crease appears once at the flange, and then return the tilt screw so that the crease disappears.
   (2) If there is tape crease
   Turn counterclockwise the tilt screw so that the tape crease disappears.
   (Reference) If the tilt screw is turned clockwise crease appears at the lower flange.

Notes:

1. Previously set the tracking control in the center position, and adjust the envelope waveform to maximum with X value adjustment nut. Thereby the tape run rough adjustment is facilitated.
2. Especially the outlet side envelope waveform must have higher flatness.

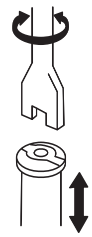


Figure 1-32.

2. Adjustment of A/C head height and azimuth
   ① Perform the initial setting of A/C head position by the method stated in "Page 30 Replacement 3".
   ② Connect the oscilloscope to the audio output (TP6601).
   ③ Using the alignment tape in which 1 kHz linear audio signal has been recorded, adjust the height screw so as to get max audio output.
   ④ Using the alignment tape in which 7 kHz linear audio signal has been recorded, adjust the azimuth screw so as to get max audio output.

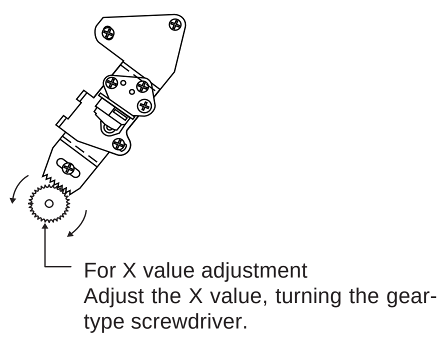
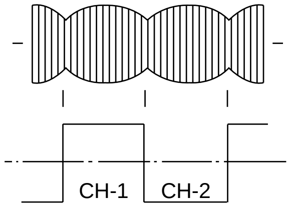


Figure 1-33.

3. Tape run adjustment
   ① Connect the oscilloscope to PB CHROMA envelope output test point, set oscilloscope sync to EXT, trigger-input the PB CHROMA signal (head switching pulse).
   ② Rough adjustment of X value
   Tentatively fix A/C head arm screws ① and ② by the method described in Page 30 "Replacement 3". After shortcircuiting TP7701 and TP7702, plug in the powercord, then turn on the power. And playback the alignment tape (VRONBZGS). As a result the auto-tracking is automatically cancelled, so that the X value adjustment mode is set.
   Move the A/C head with the X value adjustment gear driver (JiGDRiVER-6) by the method shown in Figure 1-33, and adjust the A/C head so as to get the maximum envelope waveform. (Note: When the A/C head is adjusted, adjust so that the maximum envelop waveform is obtained nearest the position of initial setting made in Page 30.)
   ③ Next, change the alignment tape to VROEFZCS to play back. Press the tracking button (+), (–) and change the envelope waveform from max to min and from min to max. At this time adjust the height of supply and take-up side guide roller with the adjustment driver (JiGDRiVERH-4) so that the envelope waveform changes nearly parallel.
   ④ If the tape is lifted or sunk from the helical lead surface, the PB CHROMA envelope waveform appears as shown in Figure 1-35.
   ⑤ Press the tracking button (+), (–) and make sure that the envelope waveform changes nearly parallel.
   ⑥ Finally check tape crease near the reverse guide. If tape crease is found, remove it as stated in Page 31 "HEIGHT ADJUSTMENT OF REVERSE GUIDE" item 3.



Head switching pulse

Figure 1-34.

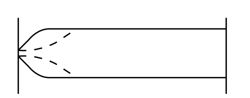
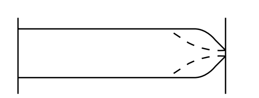
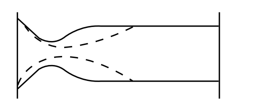
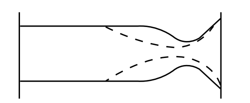
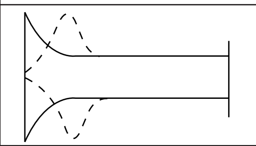
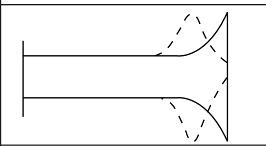
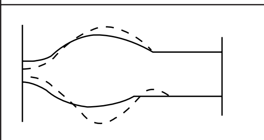
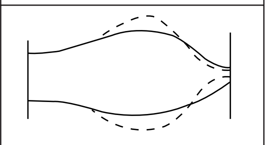
	When the tape is above the helical lead.		When the tape is below the helicallead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-35.

4. A/C head X value adjustment
   ① Tentatively fix A/C head arm screws ① and ② by the method described in Page 30 "Replacement 3".
   ② After shortcircuiting TP7701 and TP7702, plug in the powercord, then turn on the power. And playback the alignment tape (VROEFZCS). As a result the auto-tracking is automatically cancelled, so that the X value adjustment mode is set.
   ③ Move the A/C head with the X value adjustment gear driver by the method shown in Figure 1-33, and adjust the A/C head so as to get the maximum envelope waveform. (Note: At this time adjust so as to get the maximum envelope waveform nearest the A/C head position which has been set in case of X value rough adjustment as stated in Page 33, 3- ②.)
   ④ Tighten finally the screws ① and ②. Be sure to tighten at first the screw ① and then the screw ②. Final tightening torque is 0.6N·m (If the screw ② is tightened first, the X value may deviate.)
   ⑤ Adjust the playback switching point (Refer to the electric adjustment method.)
   ⑥ Playback the self-picture-recorded tape, and check the flatness of envelope waveform and sound.

Note:
When the A/C head X value adjustment is performed, be sure to perform at first X value rough adjustment (refer to Page 33, 3-②).

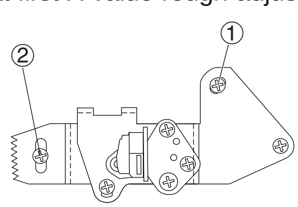


Figure 1-36.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- Remove the mechanism from the main PWB (refer to Page9 "DISASSEMBLY AND REASSEMBLY" Remove the cassette housing Assembly.

- **Removal (Follow the order of indicated numbers.)**

1. Remove the reel belt ①.

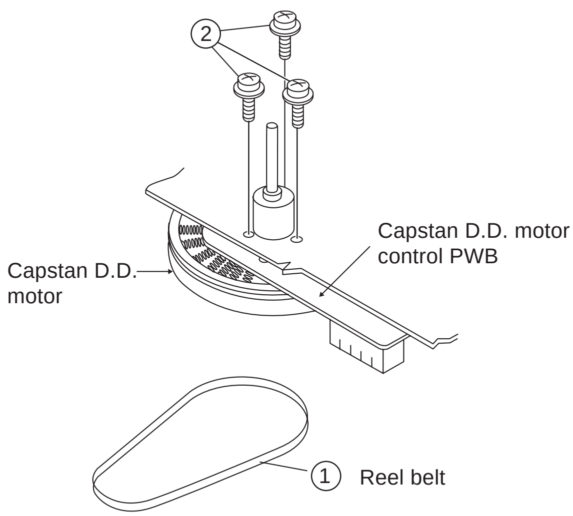


Figure 1-37.

2. Remove the three screws ②.

- **Reassembly**

1. Taking care so that the capstan shaft does not contact the mechanism chassis, set its position on the mechanism chassis, and then install with the three screws.
2. Install the reel belt.

Notes:

1. After installing the capstan D.D. motor, be sure to rotate the capstan D.D. motor and check the movement.
2. Set the tape, and check for the tape crease near the reverse guide in the playback mode. Adjust the A/C head and azimuth as stated in Page 32 item 2. If crease is found, adjust as stated in Page 31 "HEIGHT ADJUSTMENT OF REVERSE GUIDE".

REPLACEMENT OF DRUM D.D. MOTOR

1. Set the eject mode.
2. Withdraw the main power plug from the socket.

- **Removal (Perform in numerical order.)**

1. Disconnect the FFC cable ①.
2. Unscrew the D.D. stator assembly fixing screws ②.
3. Take out the D.D. stator assembly ③.
4. Unscrew the D.D. rotor assembly fixing screws ④.
5. Take out the D.D. rotor assembly ⑤.

Notes:

1. In removing the D.D. stator assembly, part of the drum earth spring pops out of the pre-load collar.
   Be careful not to lose it.
2. Install, so that the D.D. rotor ass'y and upper drum ass'y mounting direction check holes align.
   (Align the upper drum dent with the rotor hole.)
3. Be careful not to damage the upper drum or the video head.
4. Protect the hole elements from shock due to contact with D.D. stator or D.D. rotor ass'y.
5. After installation adjust the playback switching point for adjustment of servo circuit.

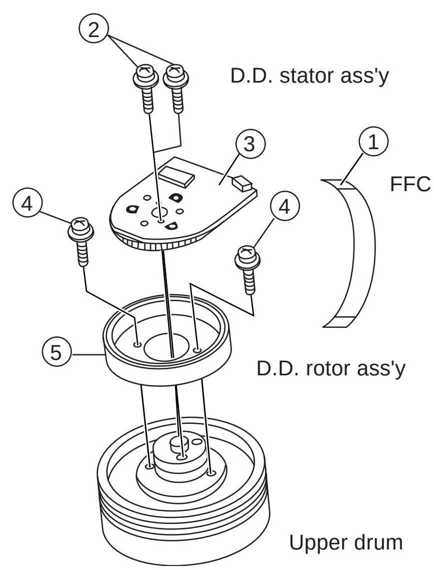


Figure 1-38.

REPLACING THE UPPER AND LOWER DRUM ASSEMBLY

• Replacement (Perform in the numerical order)
① Remove the motor as stated in Page 34 D.D. motor replacement.
② Remove the drum earth brush ②.
③ Remove the drum base ③ from the upper and lower drum assembly ①.

[Cares when replacing the drum]

1. Be careful so that the drum earth brush is not lost.
2. Do not touch directly the drum surface.
3. Fit gently the screwdriver to the screws.
4. Since the drum assembly is an extremely precise assembly, it must be handled with utmost care.
5. Make sure that the drum surface is free from dust, dirt and foreign substances.
6. After replacing the drum be sure to perform the tape running adjustment.
   After that, perform also the electrical adjustment.
   • Playback switching point adjustment
   • X-position adjustment and check
7. After replacing the drum clean the drum.

ASSEMBLING OF PHASE MATCHING MECHANISM COMPONENTS

- **Assemble the phase matching mechanism components in the following order.**

1. Assemble the pinch roller assembly and pinch drive cam.
2. Mounting the shifter (on the back of the mechanism chassis).
3. Mounting the master cam (on the back of the mechanism chassis).
4. Assemble the connection gear, slow brake and loading motor parts.

• Pinch drive cam and pinch roller assembling method.

(Place the following parts in position in numerical order.)

(1)Reverse drive lever ①
(2)Reverse guide spring ②
(3)Reverse guide lever ass'y ③
(4)Reverse guide height adjusting nut ④
(5)Pinch drive cam ⑤
(6)Pinch roller ass'y ⑥
(7)Open lever ⑦

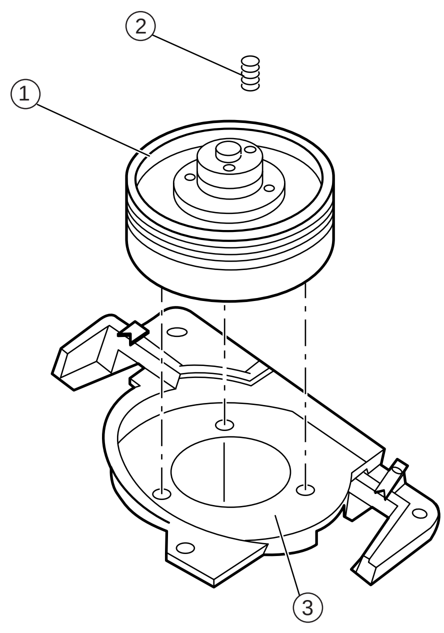


Figure 1-39.

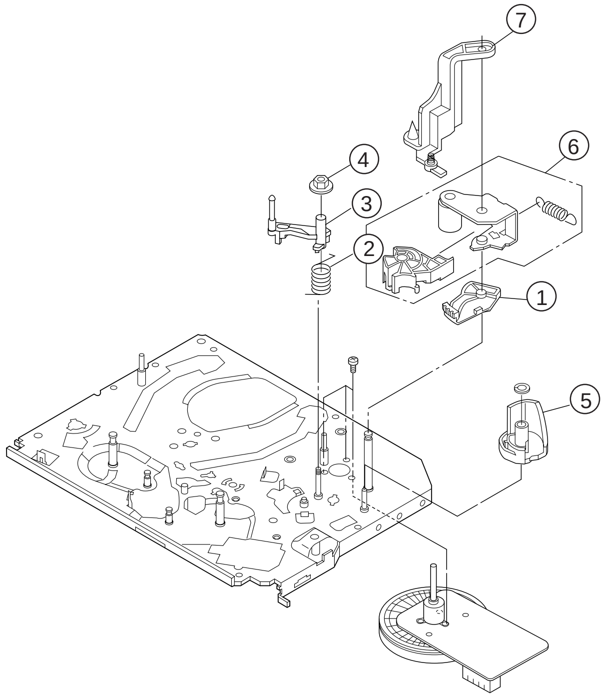


Figure 1-40.

①Insert Reverse Guide Lever Ass'y

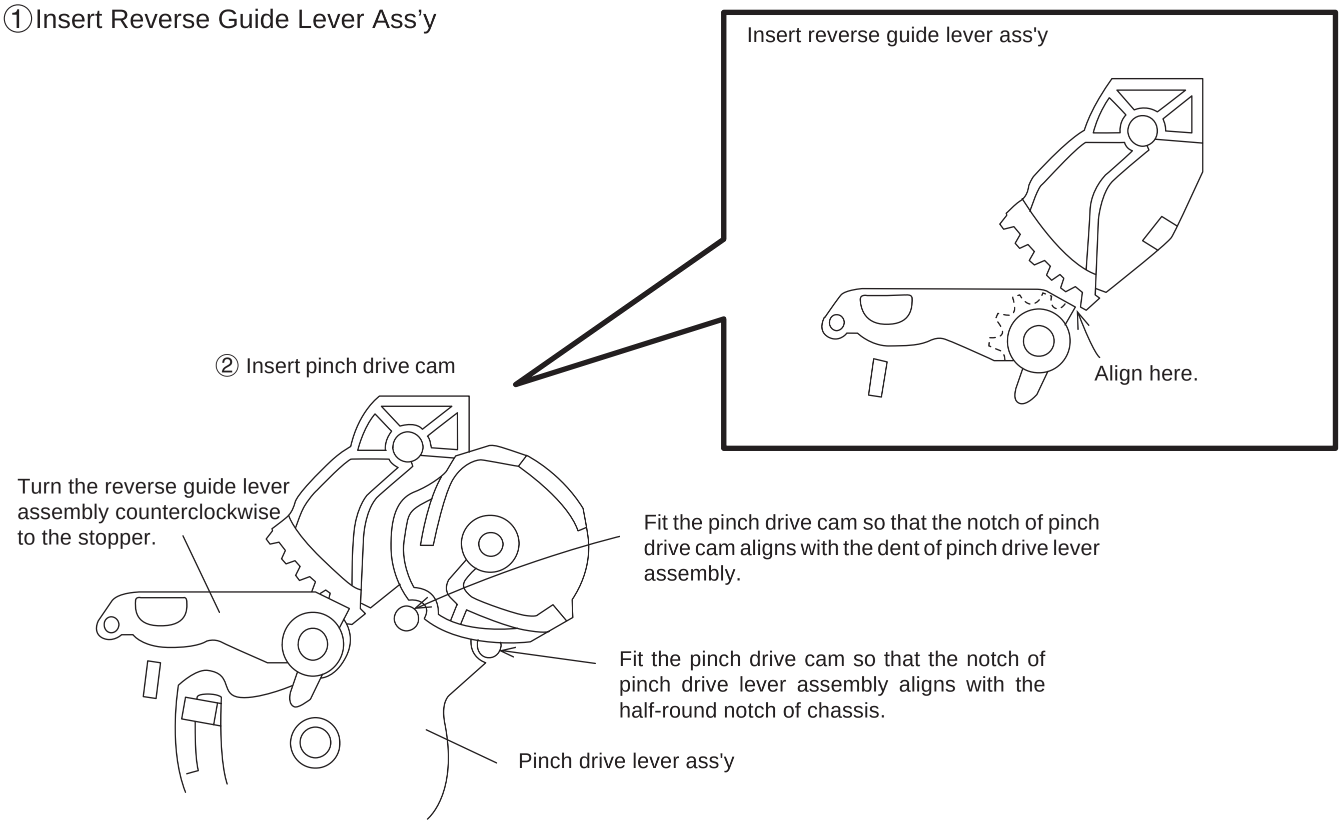


Figure 1-41-1.

②Insert Pinch Roller/Pinch Double Action Lever Ass'y.

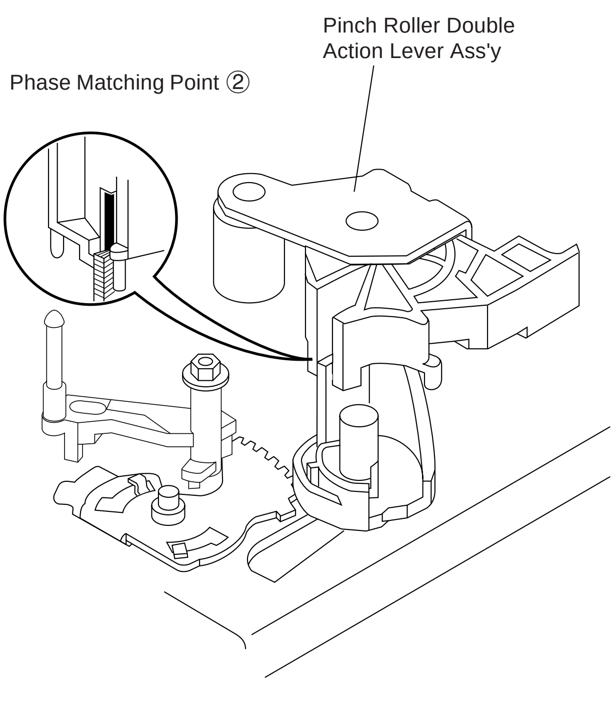


Figure 1-41-2.

③Insert Open Lever.

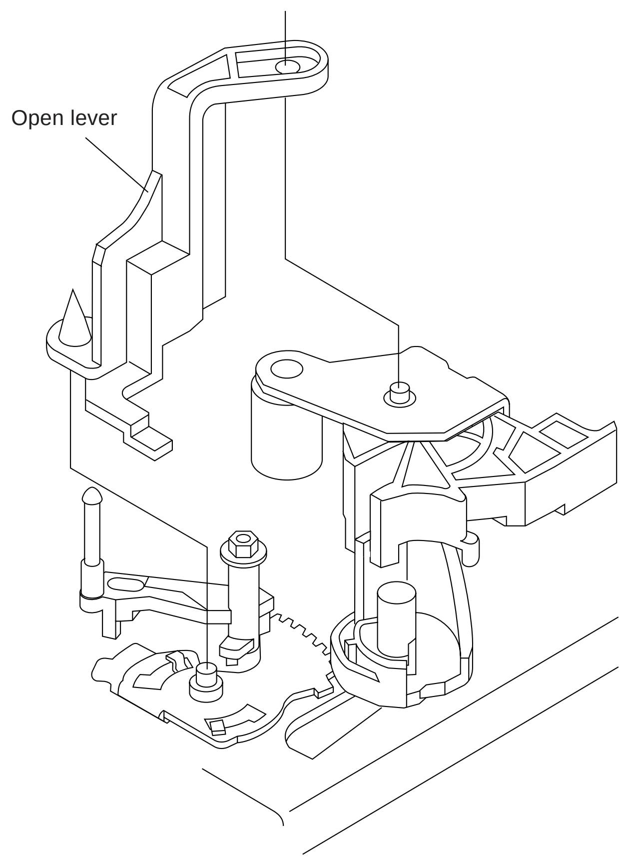
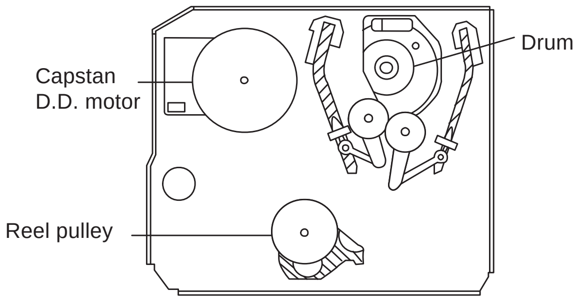


Figure 1-41-3.

INSTALLING THE SHIFTER



(Bottom side of mechanism chassis)

Figure 1-42.

1. Make sure that the loading gear is at the point ① as shown below.
2. Install, paying attention to ⑥ insertion points and ③ release points.
3. For the phase matching at the insertion point ①, see the point ② as shown below.
4. Finally fix the inserts ① and ④.

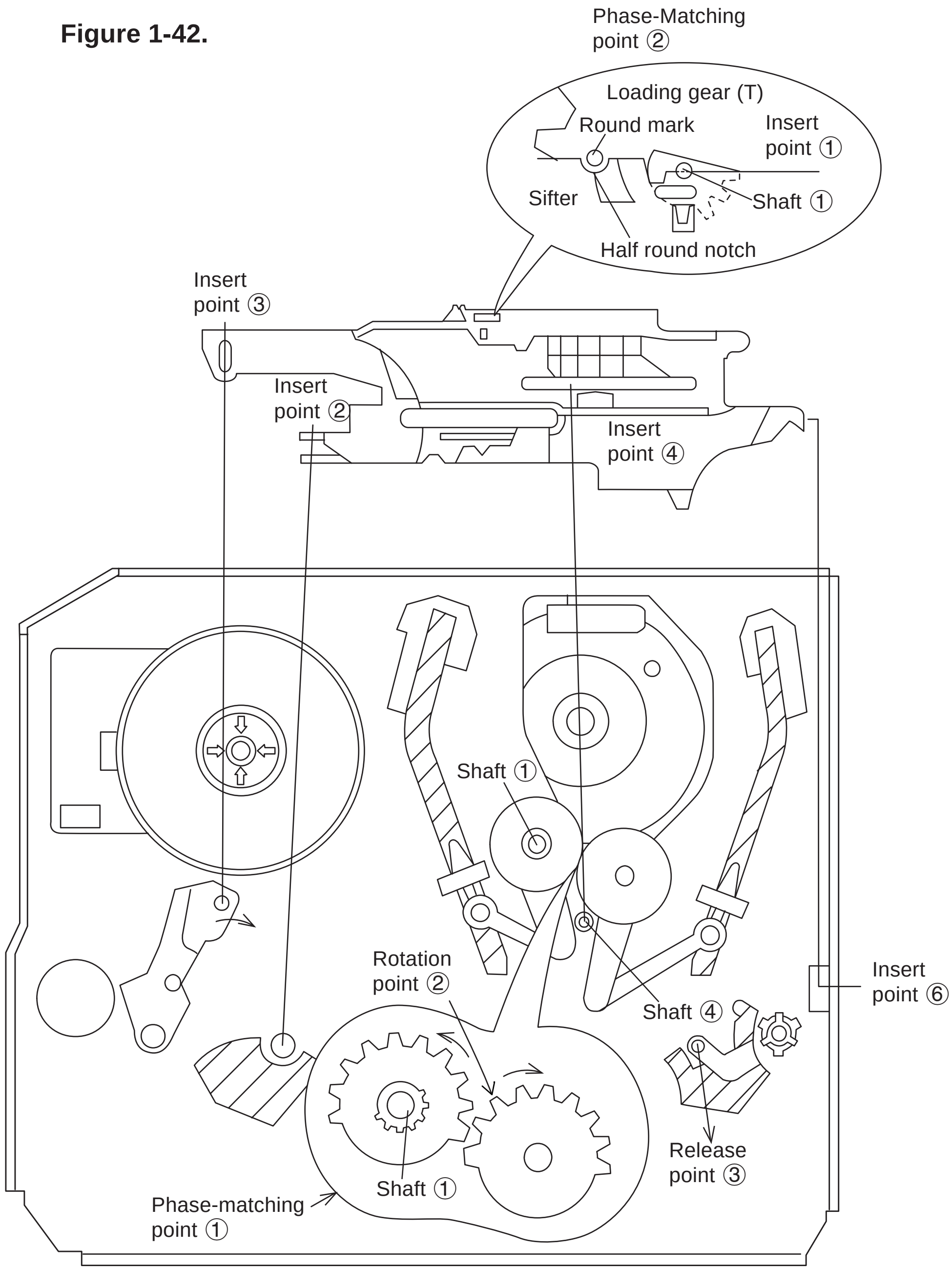


Figure 1-43.

INSTALLING THE MASTER CAM (AT REAR SIDE OF MECHANISM CHASSIS)

1. Make sure beforehand that the shifter is at the point as shown below.
2. Place the master cam in the position as shown below.

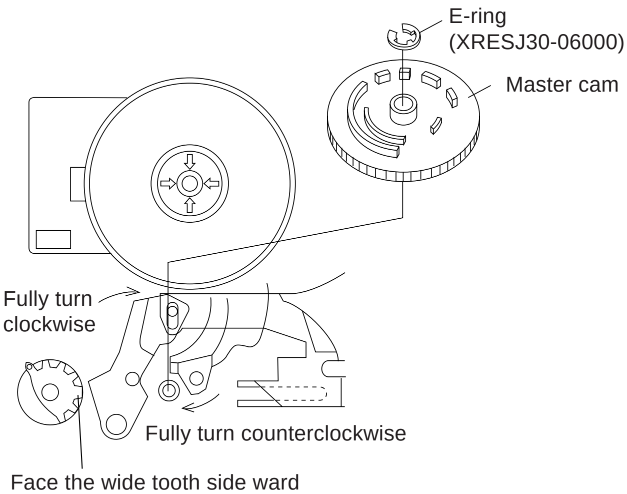


Figure 1-44-1.

Note:
See the figure below for the phase matching between the master cam and the casecon drive gear.

3. Finally fix with the E-ring.

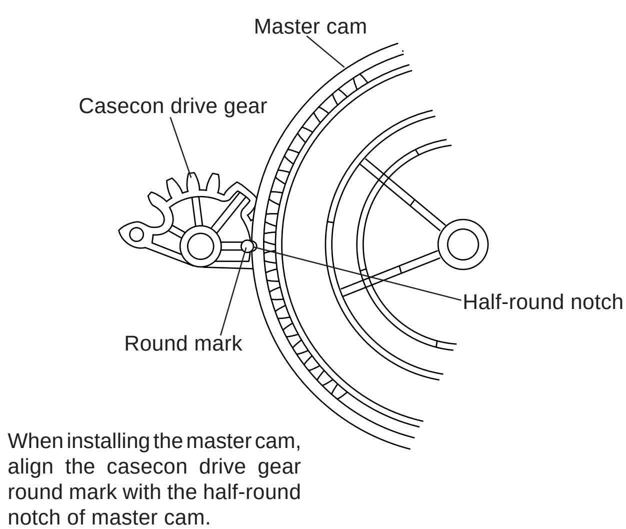


Figure 1-44-2.

REPLACEMENT OF LOADING MOTOR

- **Removal**

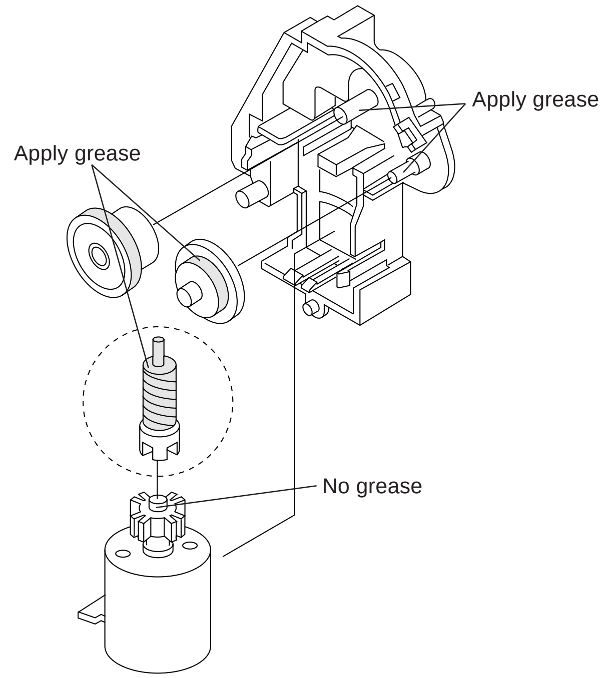


Figure 1-45.

- **Replacement**

1. Remove the loading motor, and install the replacement loading motor as shown below.

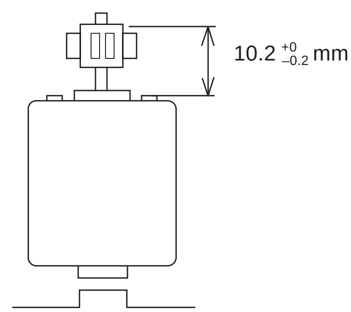


Figure 1-46.

The loading motor pressing-in must be less than 14.7 N (15 gf).
Adjust the distance between motor and pulley to $10.2^{+0}_{-0.2}$ mm).

ASSEMBLY OF CASSETTE HOUSING

1. Drive Gear and R Drive angle ass'y

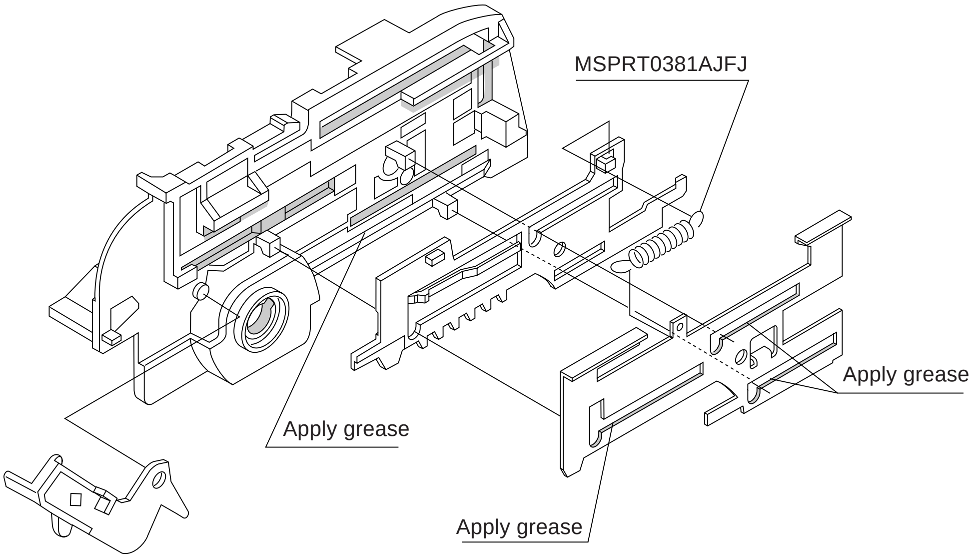


Figure 1-47.

2. Synchro Gear, Drive Gear L and Drive Gear R

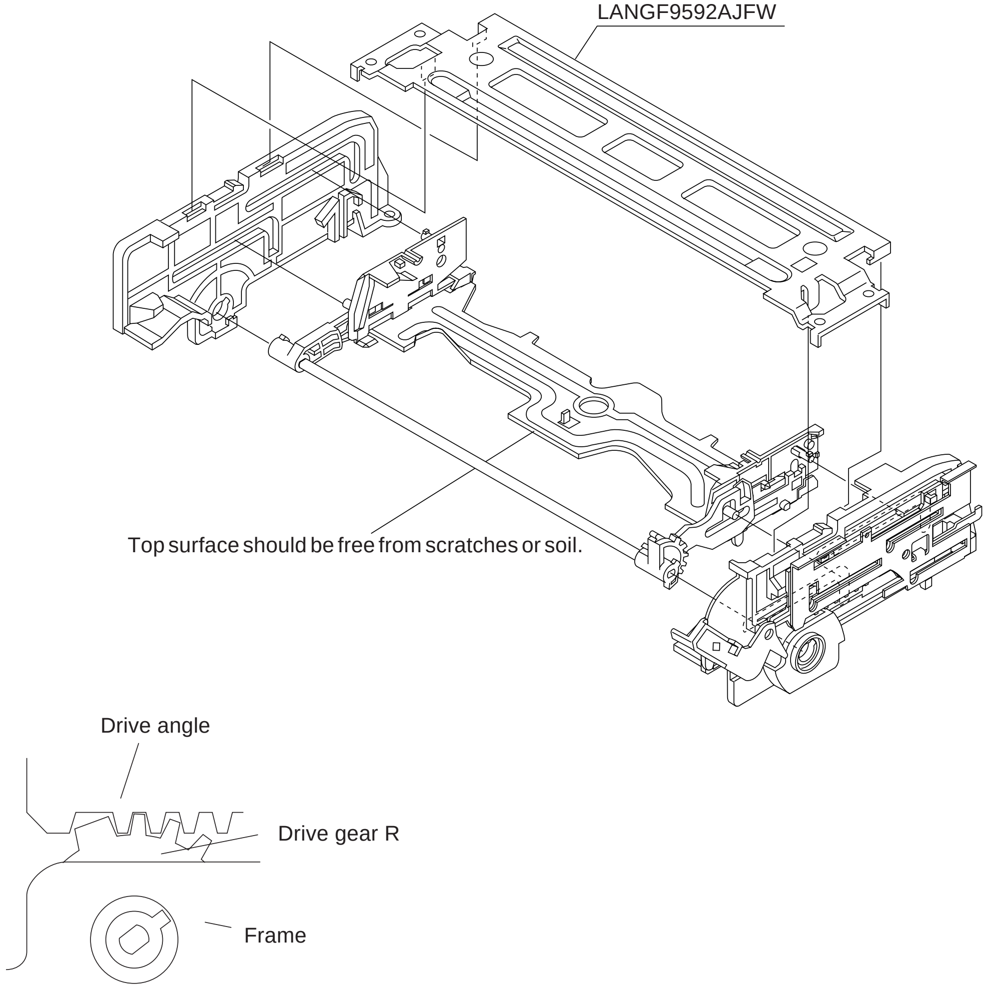


Figure 1-48.

ADJUSTMENT OF THE VCR ELECTRICAL CIRCUITRY

Notes:

- Before the adjustment:
  Electrical adjustments described here are often required after replacement of electronic components and mechanical parts such as video heads.
  Check that the mechanism and all electric components are in good working condition prior to the adjustments, otherwise adjustments can not be completed.

- Instruments required:
  ◎ Dual-trace oscilloscope ◎ Color bar generator
  ◎ Blank video cassette tape ◎ DC voltmeter
  ◎ Screwdriver for adjustment ◎ Alignment tape (VROATSV), (VRONBZGS)

- Adjustment of the VCR should be done in the TV/VCR combinated style. But there is a function to cut off the high voltage of TV. Namely, you can check only VCR part by taking the wire lead RC off . Therefore you can use function on the occasion of checking and adjusting VCR part.

■ Test points layout of Main Unit.

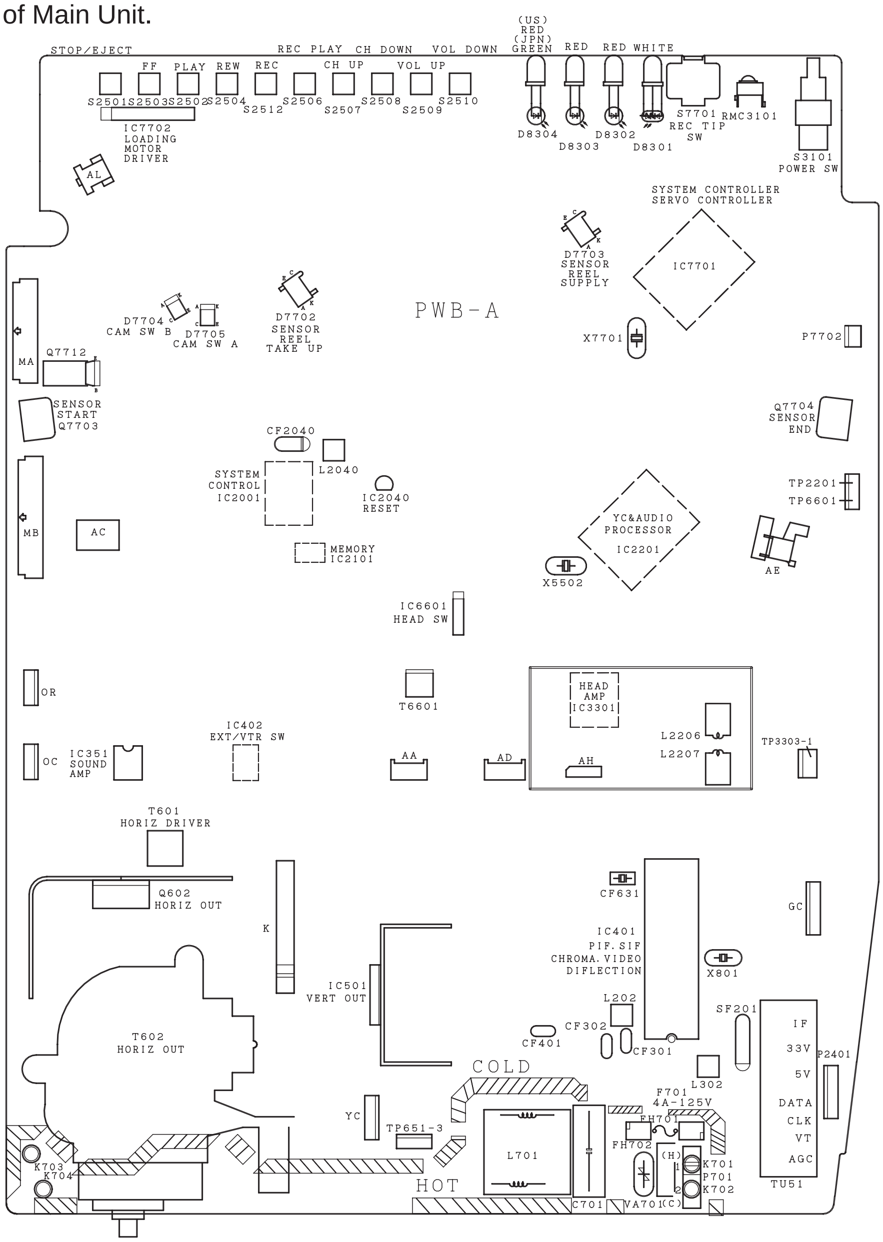


Figure 2-1.

SERVO CIRCUIT ADJUSTMENT
ADJUSTMENT OF HEAD SWITCHING POINT

Measuring instrument	Dual-trace oscilloscope
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	TP2201 (Video Out) to CH1 TP3302 (Trigger) to CH2
Control	Remote Control
Specification	5.5 ± 0.5H (lines)

1. Play the alignment tape.(VROATSV.)
2. Press the CH ▼ (TR ⊖) button and the "0" button of remote control at the same time to turn the set into the adjustment mode for head switching point and to set the tracking to center. (See Notes below) "T" is displayed on the TV screen.
3. Press the PLAY button of remote control to make the adjustment of head switching point, then the leading edge of the head switching pulse is automatically set 5.5H (lines) ahead of the vertical sync as shown Figure 2-1 and the adjustment data is memorized in the E^2P-ROM IC.
4. Then press the stop button to stop the tape.

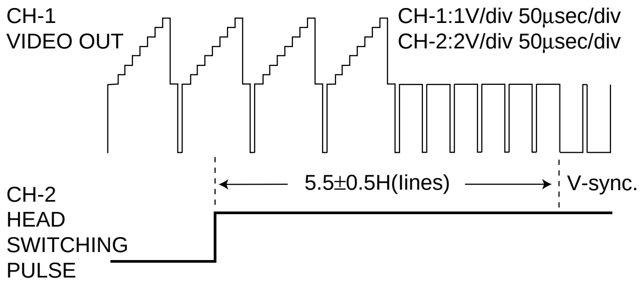


Figure 2-2.

Notes:

① To make this adjustment, disable the AUTO TRACKING function.

- The AUTO TRACKING function is disable in the following cases. (In the playback mode only.)
  - ⓐ When the CH ▼ (TR ⊖) button and the "0" button of the remote control are pressed at the same time.
  - ⓑ When the AC cord is plugged in with making TP7701 and TP7702 short circuited, after the cassette housing control ass'y is removed. (Mechanism operating mode)
- The AUTO TRACKING function becomes available in the following cases.
  - ⓐ When the CH ▲ (TR⊕) button and the CH▼ (TR ⊖) button of the remote control are pressed at the same time.
  - ⓑ When the AC cord is plugged in with the cassette housing control ass'y put back.

② Pressing both the CH ▼ (TR ⊖) and the "0" button transmits the test code. When the unit receives this test code in the playback mode, the unit is turned into the adjustment mode for the head switching point and "T" is displayed at the position of CH number on the screen. This function is available to the remote control RRMCG1331PESA.

ADJUSTMENT OF SLOW TRACKING PRESET

Measuring instrument	Monitor screen
Mode	SP/EP slow motion playback
Input signal	Self-recording tape
Test point	Monitor screen
Control	Remote control
Specification	No noise bar on the monitor screen

1. Play back the SP self-recorded tape in the slow mode.
2. Press the CH ▼ (TR ⊖) button and the "0" button of remote control at the same time to turn the set into the adjustment mode for the SP slow tracking preset. "T" is displayed on the TV screen.
3. Press the SLOW button of remote control to make the adjustment of the SP slow tracking preset. The SP slow tracking preset is automatically adjusted so that there is no noise bar on the screen, then the adjustment mode is released. "T" disappears on the screen.
4. Press the PLAY button to return to the SP playback mode, then press the PAUSE/STILL button to enter the still mode. Be sure that there is no noise bar on the screen. (Repeat three times.)
5. Next play back the EP self-recorded tape in the slow mode.
6. Press the CH ▼ (TR ⊖) button and the "0" button of remote control at the same time to turn the set into the adjustment mode for the EP slow tracking preset. "T" is displayed on the TV screen.
7. Press the SLOW button of remote control to make the adjustment of the EP slow tracking preset. The EP slow tracking preset is automatically so that there is no noise bar on the screen, then the adjustment mode is released. "T" disappears on the screen.
8. Press the PLAY button to return to the EP playback mode, then press the PAUSE/STILL button to enter the still mode. Be sure that there is no noise bar on the screen. (Repeat three times.)
9. Press the STOP button to stop the tape.

Note:

① The data of this adjustment is memorized in the E^2P-ROM IC.

② Pressing both the CH ▼ (TR ⊖) button and the "0" button at the same time transmits the test code. When the unit receives this test code in the slow mode, the unit is turned into the adjustment mode for the SP or EP slow tracking preset and "T" is displayed at the position of CH number on the screen. This function is available to the remote control : RRMCG1331PESA.

ADJUSTMENT OF STILL PICTURE VERTICAL SYNC

Measuring instrument	Monitor screen
Mode	EP still picture playback
Input signal	Self-recording tape
Test point	Monitor screen
Control	CH ▲/▼ (TR ⊕/ ⊖) buttons
Specification	No Vertical jitter

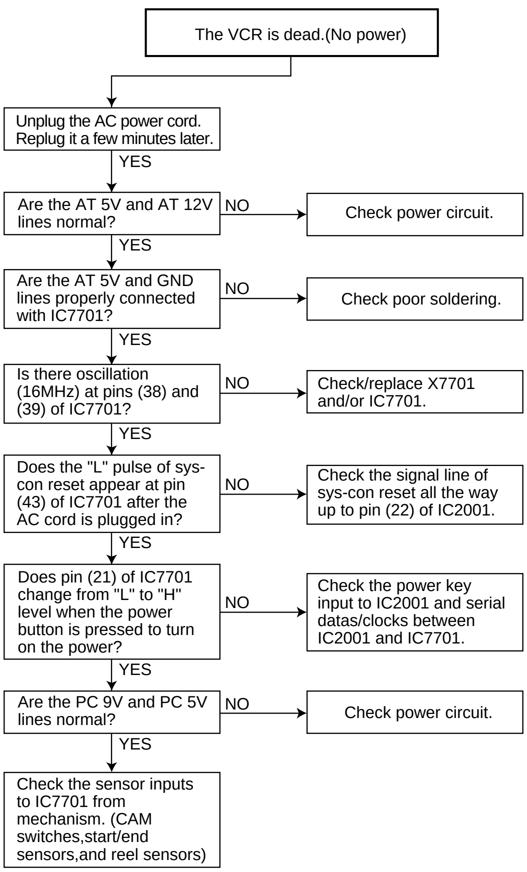
1. Play back the EP Self-recorded tape in the still mode.
2. Using the CH ▲/▼ (TR ⊕/ ⊖) buttons on the remote control or on the front pannel, make adjustment so that the vertical jitter becomes minimum.
3. Then press the STOP button to stop the tape.

Note:

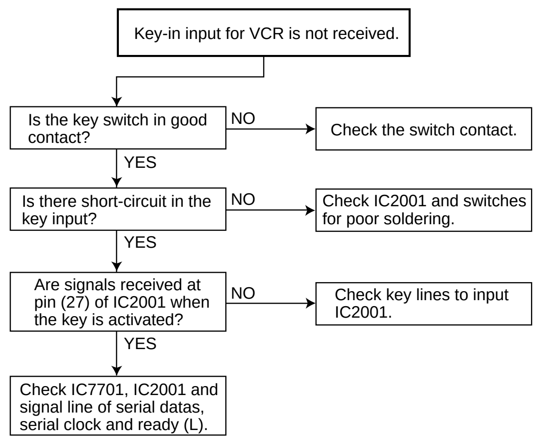
The data of this adjustment is memorized to the E^2P-ROM IC.

ELECTRICAL TROUBLESHOOTING

VCR POWER TROUBLESHOOTING — FLOW CHART NO.1-1



KEY-IN TROUBLESHOOTING — FLOW CHART NO.1-2



CASSETTE CONTROL TROUBLESHOOTING — FLOW CHART NO.1-3

A cassette tape is not taken in.

1. Is the cassette housing distored?
   - YES → Fix or replace the cassette housing.
   - NO ↓
2. Does the start sensor cover become open when the cassette tape is inserted?
   - NO → Check the start sensor cover.
   - YES ↓
3. Does the start sensor pin (2) of IC7701 go to "L" level when the cassette tape is inserted?
   - NO → Check the start sensor and the way up to pin (2) of IC7701.
   - YES ↓
4. Does pin (5) of IC7702 (BA6209) go to "H" level (about 1.8V) when the cassette tape is inserted?
   - NO → Check pin (12) of IC7701 and all the way up to pin (5) of IC7702.
   - YES ↓
5. Does pin (2) of IC7702 go to about11V when the cassette tape is inserted?
   - NO → Check IC7702 and AT12V line.
   - YES ↓
6. Is the correct voltage at the loading motor terminal when the cassette tape is inserted?
   - NO → Check between IC7702 and the loading motor.
   - YES ↓
7. Check and replace the loading motor.

A cassette tape is taken in, but ejected at once.

1. Does start sensor pulse at pin (2) of IC7701 change from "L" to "H" level when the cassette tape is loaded?
   - NO → Check the start sensor and all the way up to IC7701.
   - YES ↓
2. Does end sensor pulse at pin (3) of IC7701 change from "L" to "H" level when the cassette tape is loaded?
   - NO → Check the end sensor and all the way up to IC7701.
   - YES ↓
3. Do the cam switches A and B operate normally when the cassette tape is loaded?
   - NO → Check cam switches and all the way up to IC7701.
   - YES ↓
4. Replace IC7701

LOADING MOTOR AND EJECT TROUBLESHOOTING — FLOW CHART NO.1-4

A cassette tape fails to eject.

1. Does the capstan motor start when the EJECT button is pressed?
   - NO → See FLOW CHART NO.1-6.
   - YES ↓
2. Does the take-up reel disk turn when the capstan motor is running?
   - NO → Check the reel disk and reel drive unit.
   - YES ↓
3. Is reel pulse at pin (80) of IC7701 when the take-up reel disk is turning?
   - NO → Check the take up reel sensor and all the way to IC7701.
   - YES ↓
4. Is "H" level (about 1.8V) at pin (6) of IC7702 when reel pulse is inputted?
   - NO → Check between pin (6) of IC7702 and all the way up to pin (11) of IC7701.
   - YES ↓
5. Is about 11V at pin (10) of IC7702?
   - NO → Check IC7702 and "L" level of pin (5) of it.
   - YES ↓
6. Is the correct voltage at the loading motor terminal?
   - NO → Check between IC7702 and all the way up to the loading motor.
   - YES ↓
7. Does the loading motor run?
   - NO → Replace the loading motor.
   - YES ↓
8. Replace the cassette cam, gear, etc.

SYSTEM CONTROL TROUBLESHOOTING — FLOW CHART NO.1-5

No power.

1. Are serial clock pulse and TV data pulse applied to pins (67) and (66) of IC7701 from IC2001?
   - NO → Check IC2001 and IC7701.
   - YES ↓
2. Are system control data pulse and system control ready pulse applied to pins (36) and (35) of IC2001 from IC7701?
   - NO → Check IC2001 and IC7701.
   - YES ↓
3. Does power control (H) signal at pin (21) of IC7701 change from "L" to"H" level?
   - NO → Check IC7701.
   - YES ↓
4. Is the PC9V line normal?
   - NO → Check IC765 (PC9V GEN.)
   - YES ↓
5. Is the PC5V line normal?
   - NO → Check Q756 (PC5V GEN.)
   - YES ↓
6. Check peripheral circuit for poor soldering of PC9V and PC5V lines.

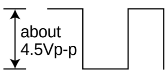
CAPSTAN MOTOR TROUBLESHOOTING — FLOW CHART NO.1-6

The capstan motor fails to run.

1. Is 5V at pin (8) of AC connector?
   - NO → Check the AT5V line.
   - YES ↓
2. Is the voltage more than about 2.6V given to pin (4) of AC connector?
   - NO → Check between the MC connector and IC7701, and between the MC connector and pin (75) of IC7701.
   - YES ↓
3. Is the voltage at pin (3) of AC connector 1.8~2.7V?
   - NO → Check pin (74) of IC7701
   - YES ↓
4. Is 8V or 12V at pin (5) of AC connector?
   - NO → Check the AT8V line or the AT12V line.
   - YES ↓
5. Check/replace the capstan motor.

TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING — FLOW CHART NO.1-7

- No reel sensor pulse appears.
- ↓
- Insert the cassette, and put the unit in FF or REW mode.
- ↓ NO
- Are there the take up/supply reel pulses at the collectors of D7702/D7703?
  - YES → Check between D7702 and pin (80) of IC7701, between D7703 and pin (79) of IC7701.
  - NO ↓
- Replace the take up/supply reel sensors D7702/D7703.

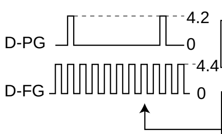


DRUM MOTOR TROUBLESHOOTING — FLOW CHART NO.1-9

- The drum motor fails to run.
- ↓
- Is the voltage more than about 2.6V applied at pin (1) of ME connector?
  - NO → Check between the ME socket and pin (78) of IC7701, and between the ME socket and pin (76) of IC7701.
  - YES ↓
- Is 5V at pin (7) of ME connector?
  - NO → Check the AT 5V line.
  - YES ↓
- Is 12V at pin (4) of ME connector?
  - NO → Check the AT12V line.
  - YES ↓
- Check/replace the drum motor.

HEAD SWITCHING PULSE TROUBLESHOOTING — FLOW CHART NO.1-8

- No head switching pulse.
- ↓
- Is the drum motor rotating?
  - NO → See FLOW CHART NO. 1-9.
  - YES ↓
- Are the drum PG and drum FG signal inputted to pins (86) and (87) of IC7701, respectively?
  - YES → Check pin (18) of IC7701 and signal line of head switching pulse.
  - NO ↓
- Are there the drum PG and drum FG Signals at pins (3) and (5) of connector AD?
  - YES → Check all the way up to pins (86) and (87) of IC7701.
  - NO ↓
- Check the harness AD-ME and the drum motor unit.

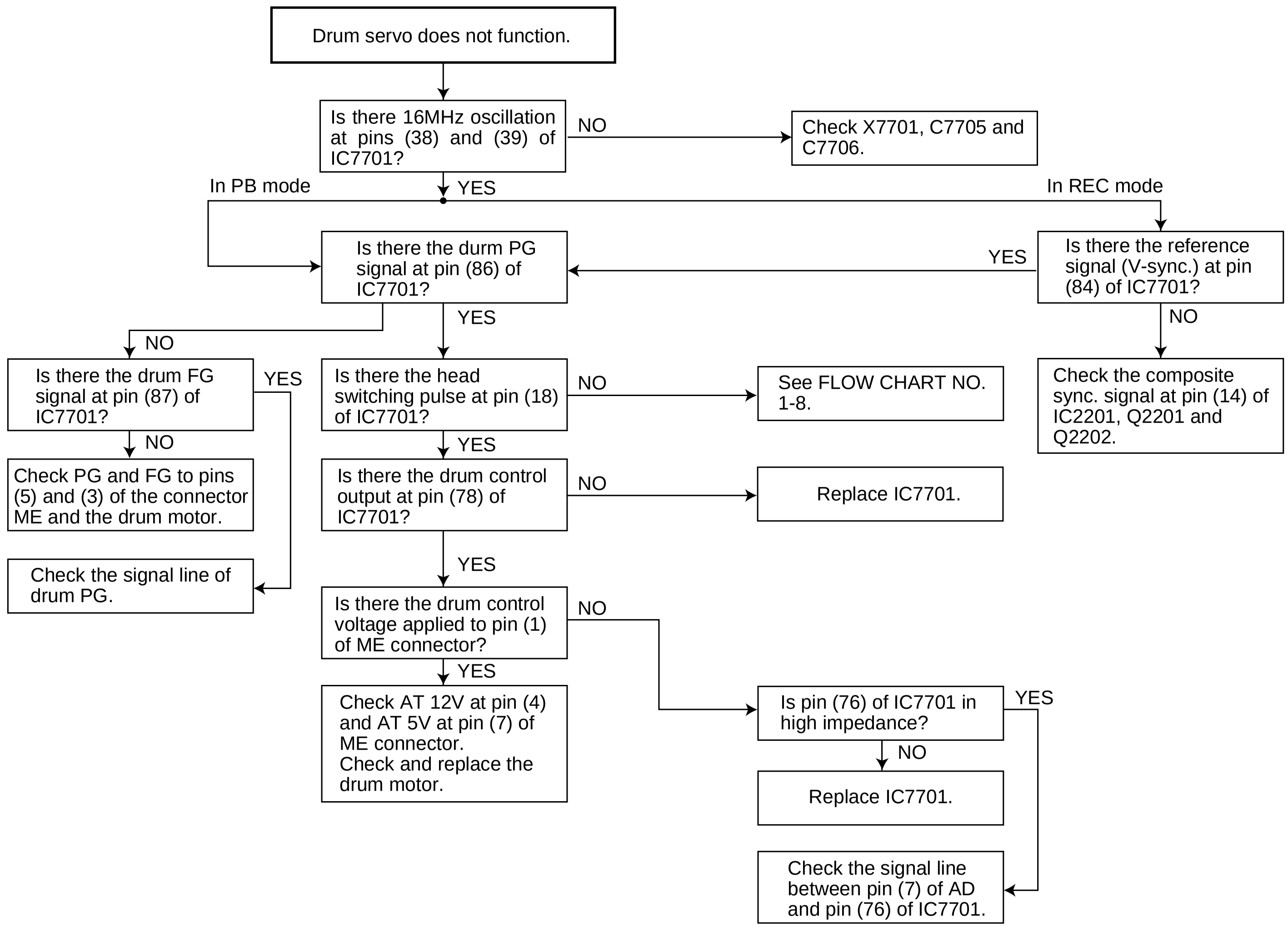


(Drum motor, continued)

- The drum motor runs only for a few seconds.
- ↓
- Is drum PG signal at pin (5) of ME connector?
  - NO → Check the drum motor.
  - YES ↓
- Is drum PG signal at pin (86) of IC7701?
  - NO → Check between the ME connector and all the way up to pin (86) of IC7701.
  - YES ↓
- IS H.SW. pulse at pin (18) of IC7701?
  - NO → Check or replace IC7701.
  - YES ↓
- Check pin (76) of IC7701.

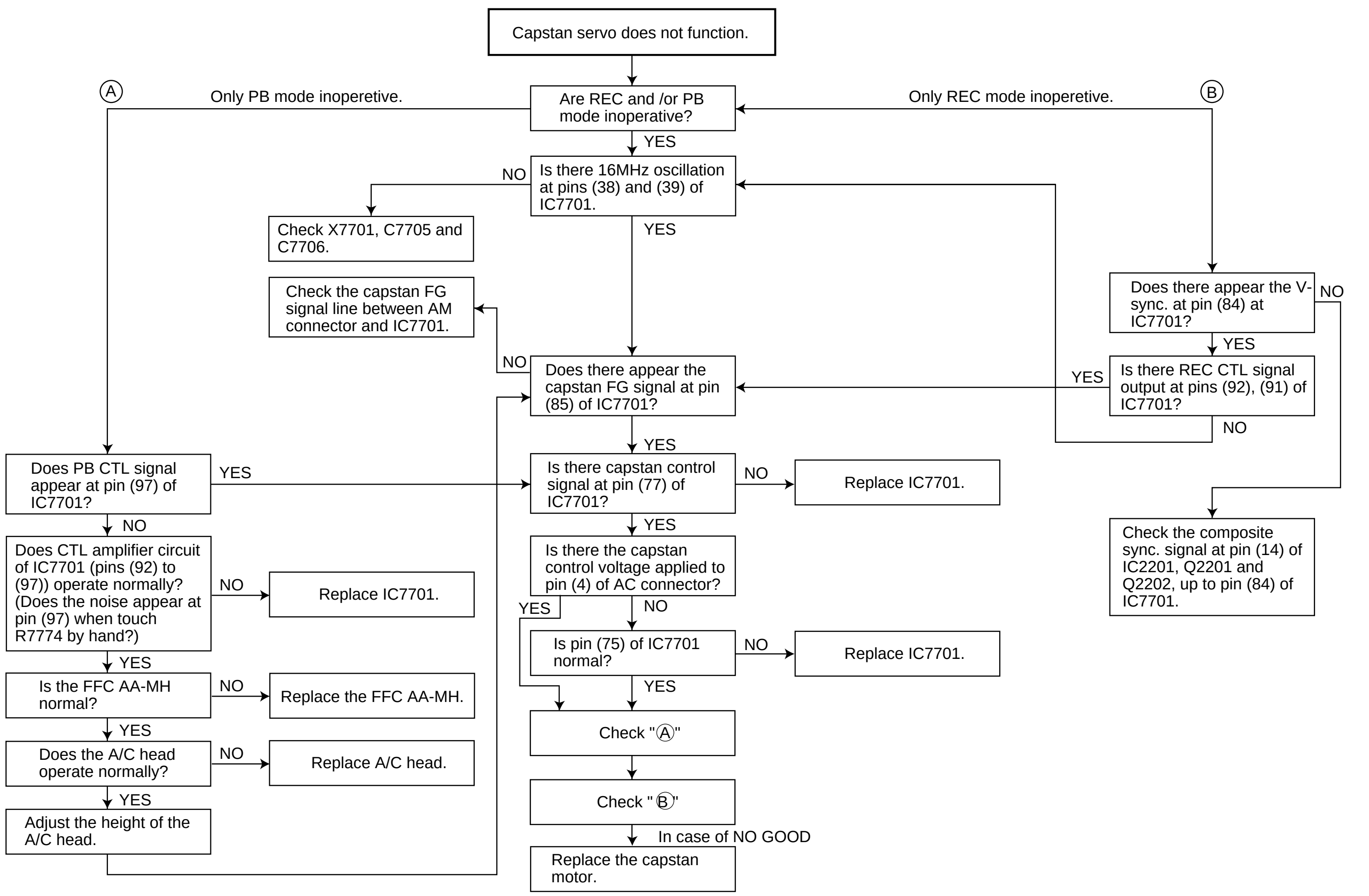
DRUM SERVO TROUBLESHOOTING

FLOW CHART NO.1-10



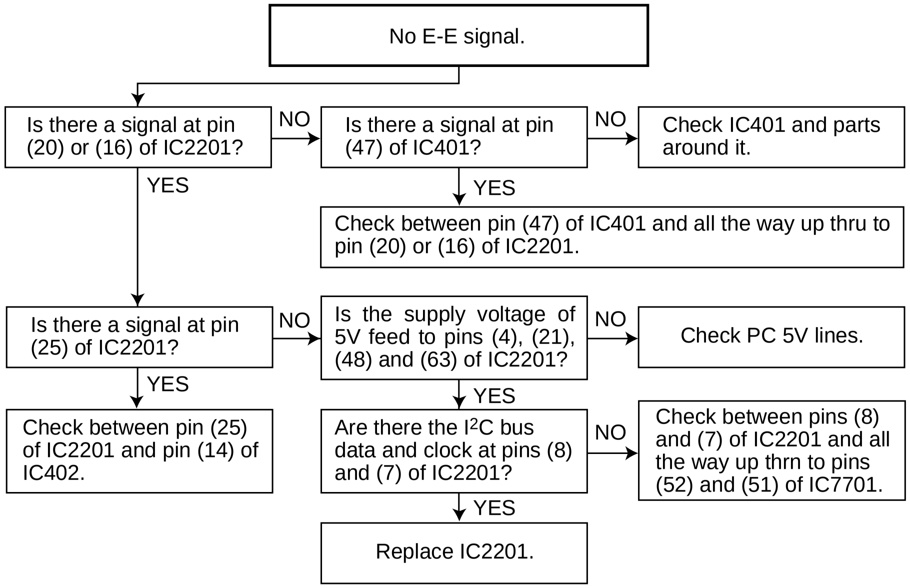
CAPSTAN SERVO TROUBLESHOOTING

FLOW CHART NO.1-11



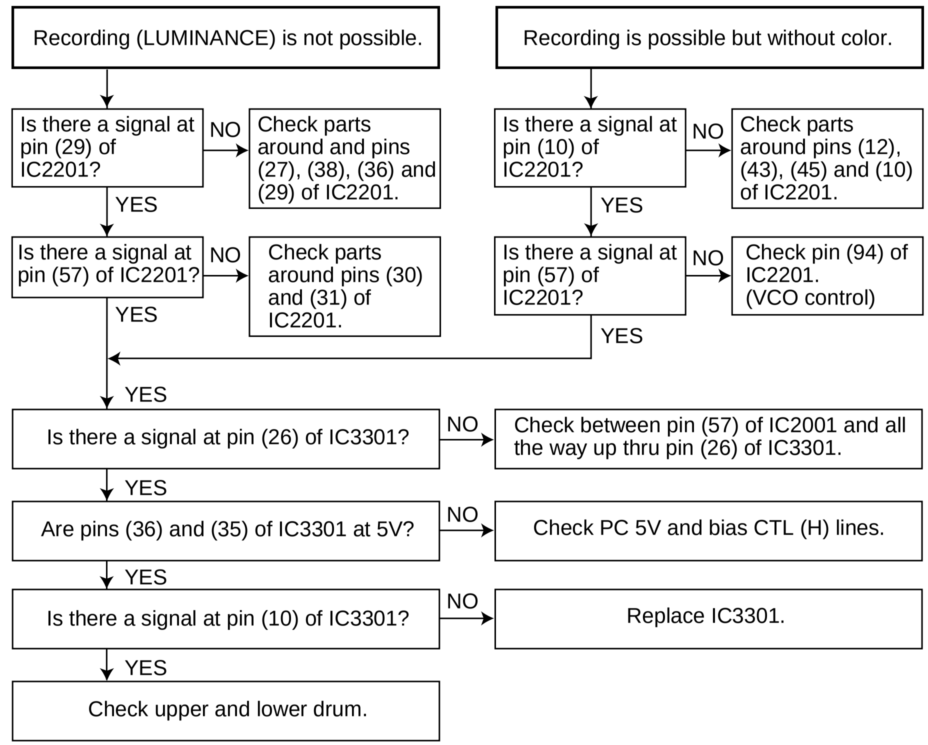
E-E MODE TROUBLESHOOTING

FLOW CHART NO.1-12



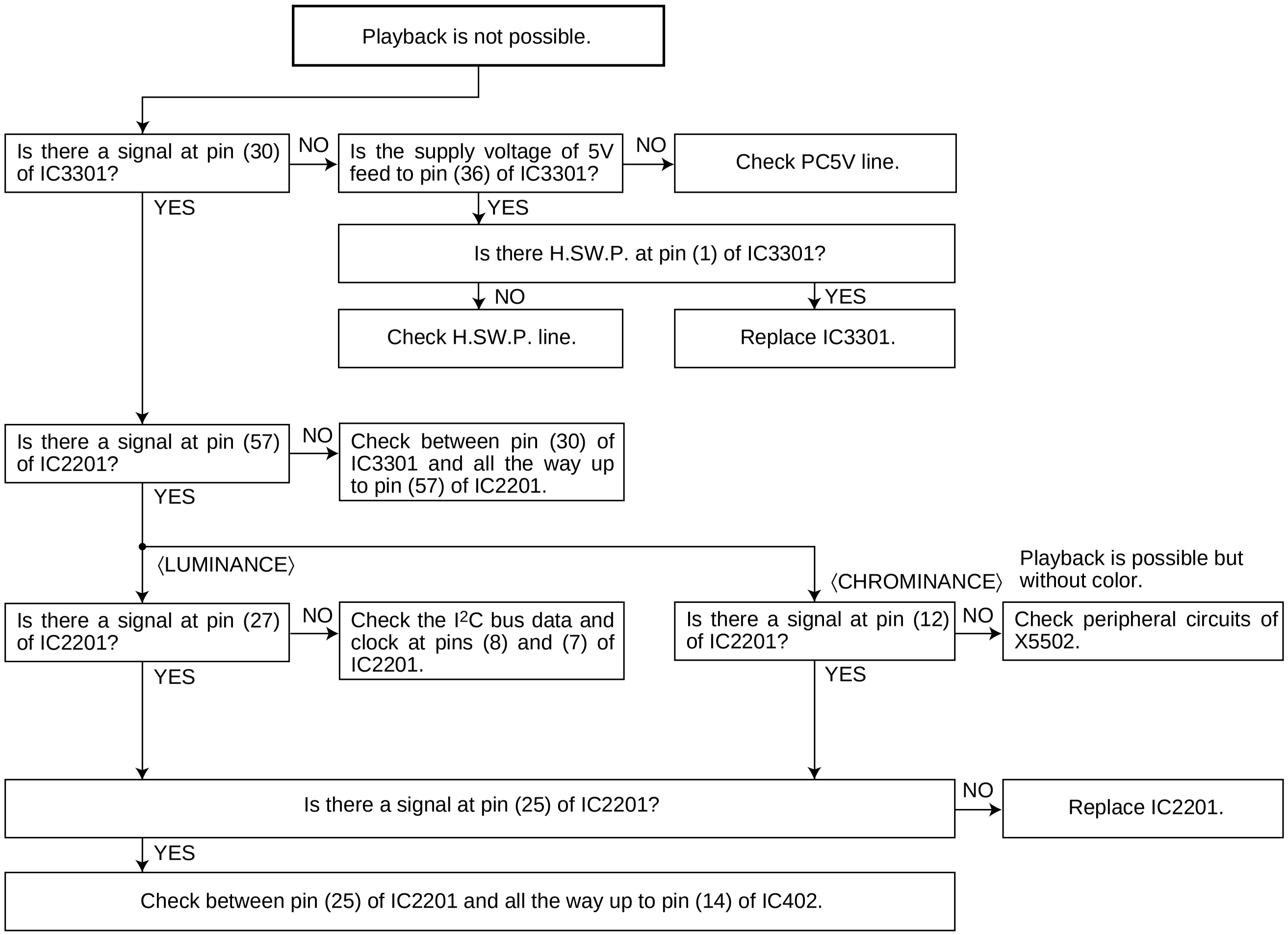
RECORDING MODE TROUBLESHOOTING

FLOW CHART NO.1-13

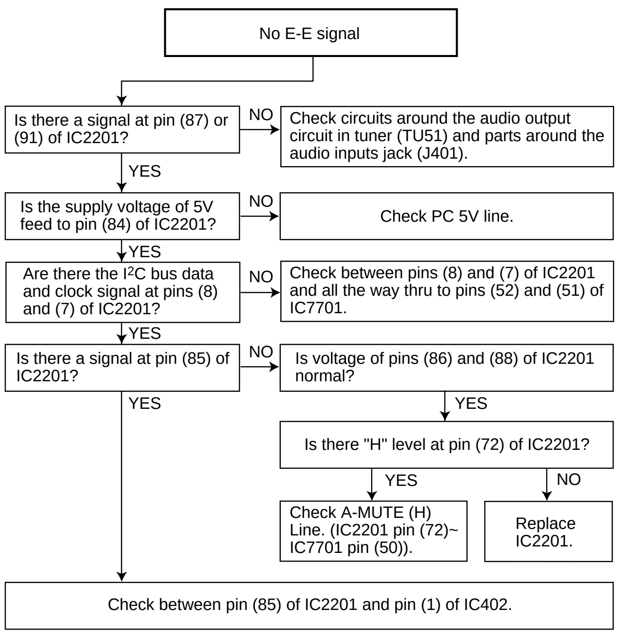


PLAYBACK MODE TROUBLESHOOTING

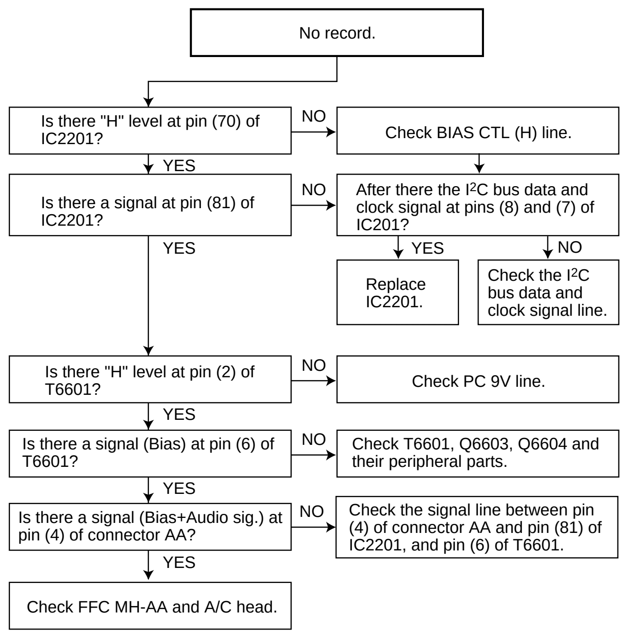
FLOW CHART NO.1-14



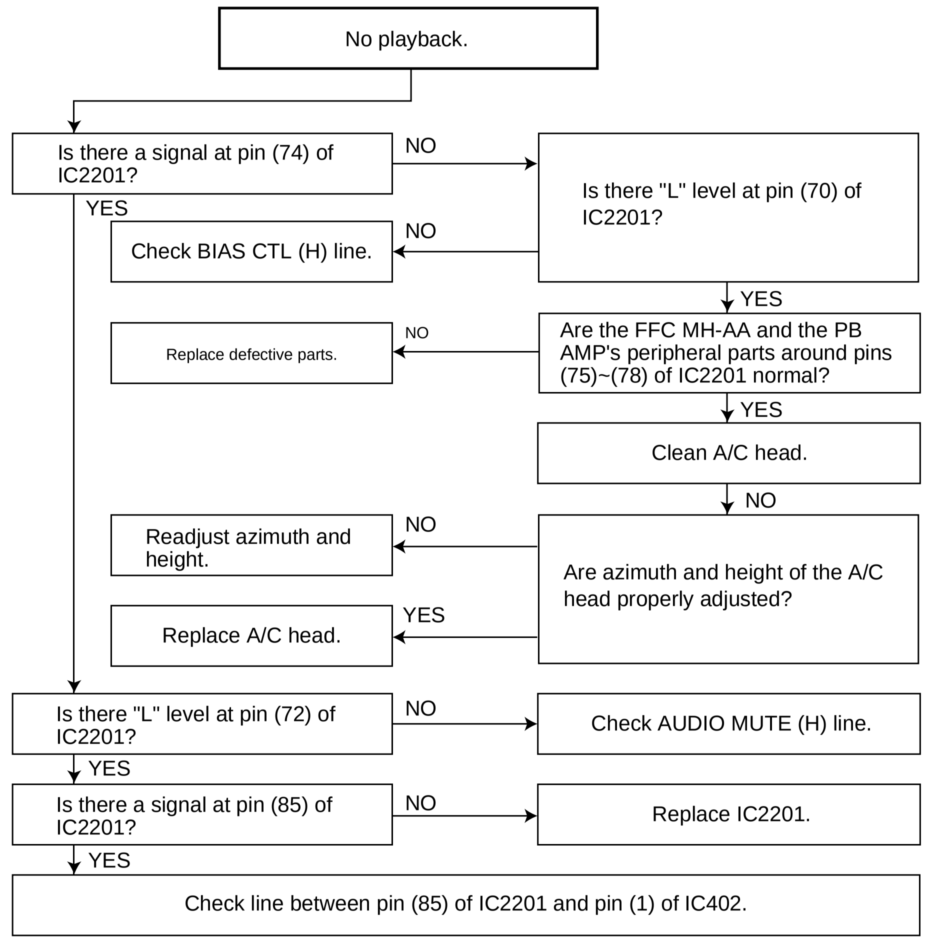
SOUND E-E MODE TROUBLESHOOTING FLOW CHART NO.1-15



SOUND RECORDING MODE TROUBLESHOOTING FLOW CHART NO.1-16

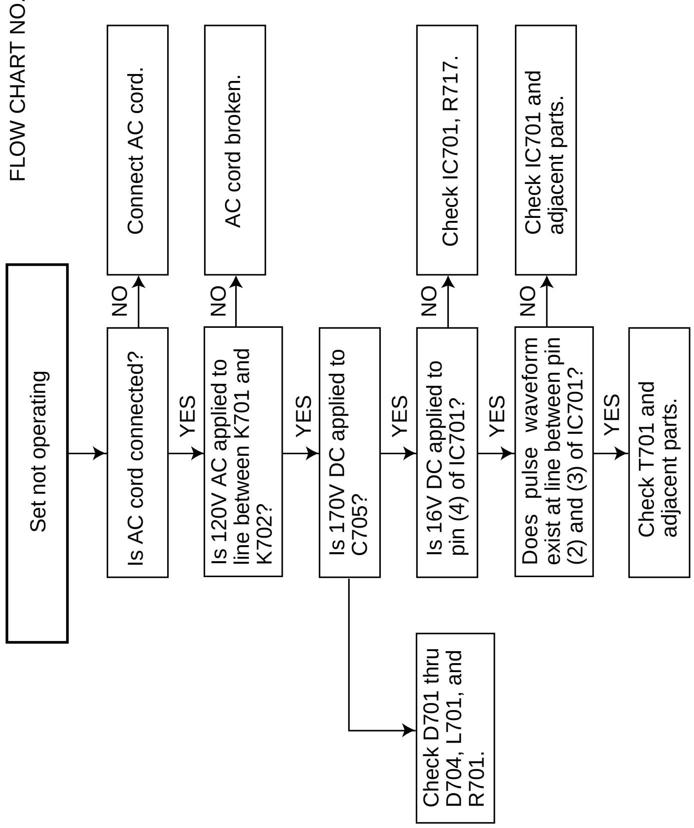


SOUND PLAYBACK MODE TROUBLESHOOTING FLOW CHART NO.1-17

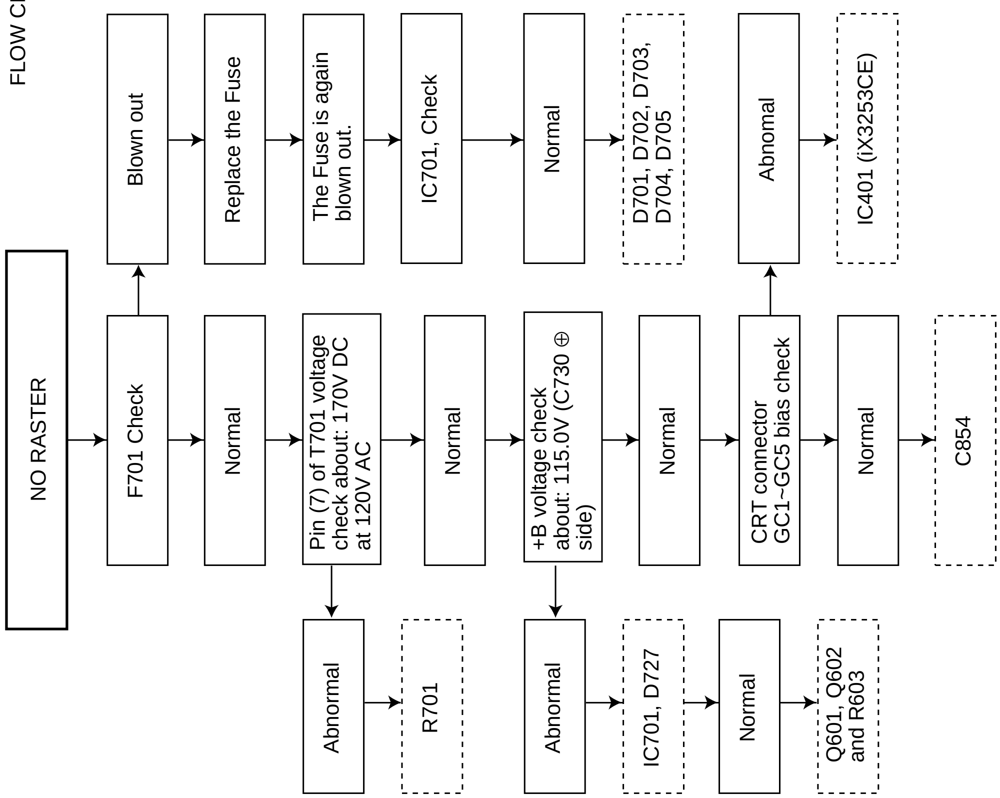


TROUBLESHOOTING OF TV SECTION

FLOW CHART NO.2-1

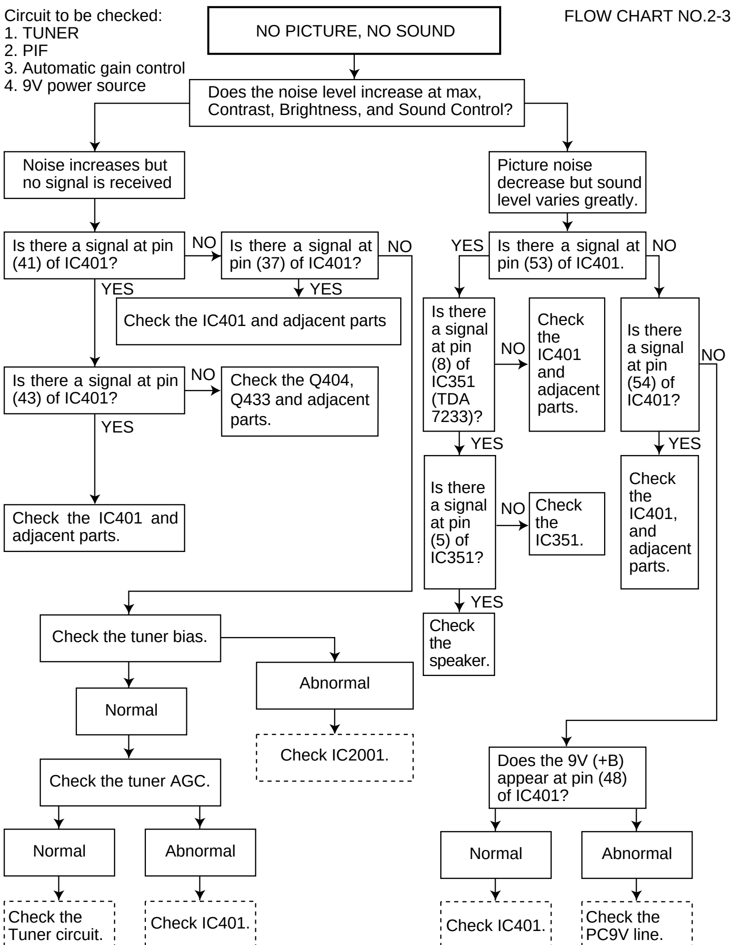


FLOW CHART NO.2-2

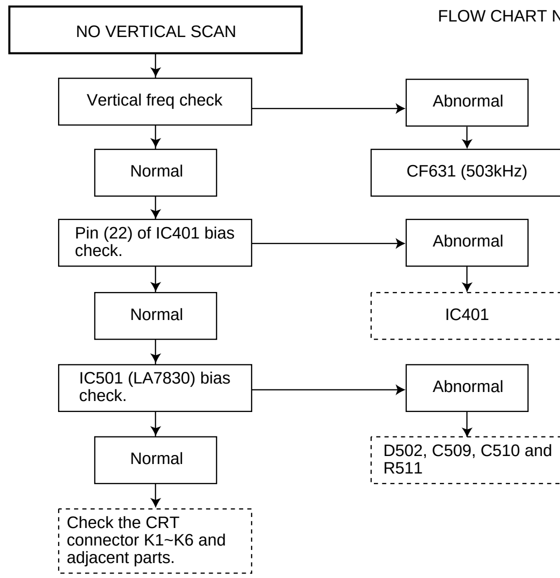


FLOW CHART NO.2-3

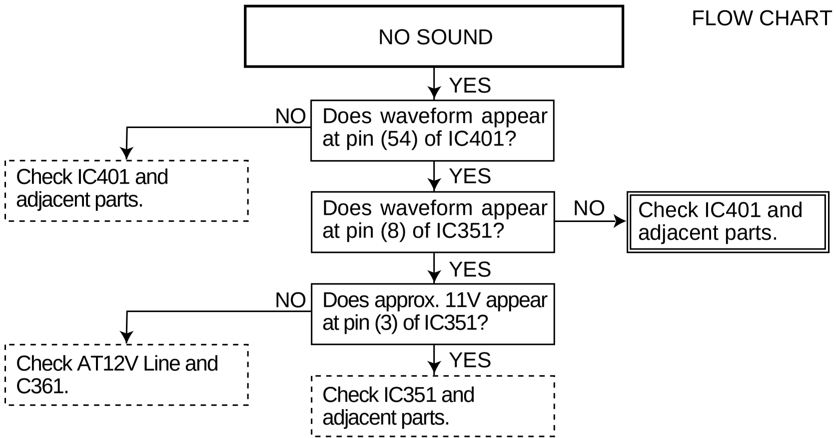
Circuit to be checked:
1. TUNER
2. PIF
3. Automatic gain control
4. 9V power source



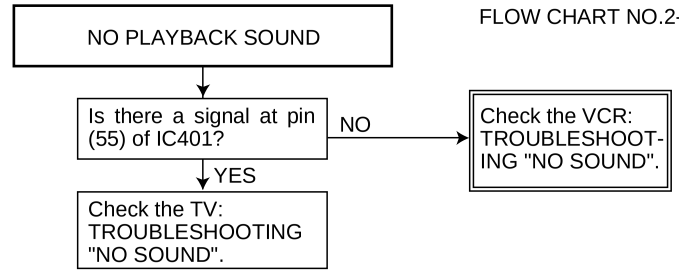
FLOW CHART NO.2-4



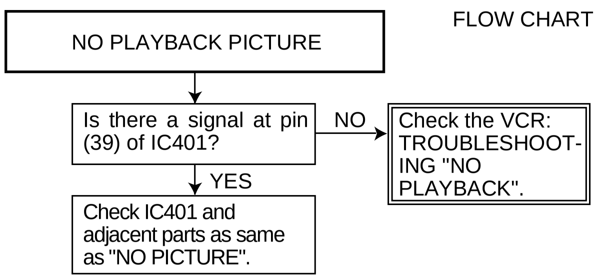
FLOW CHART NO.2-5



FLOW CHART NO.2-7

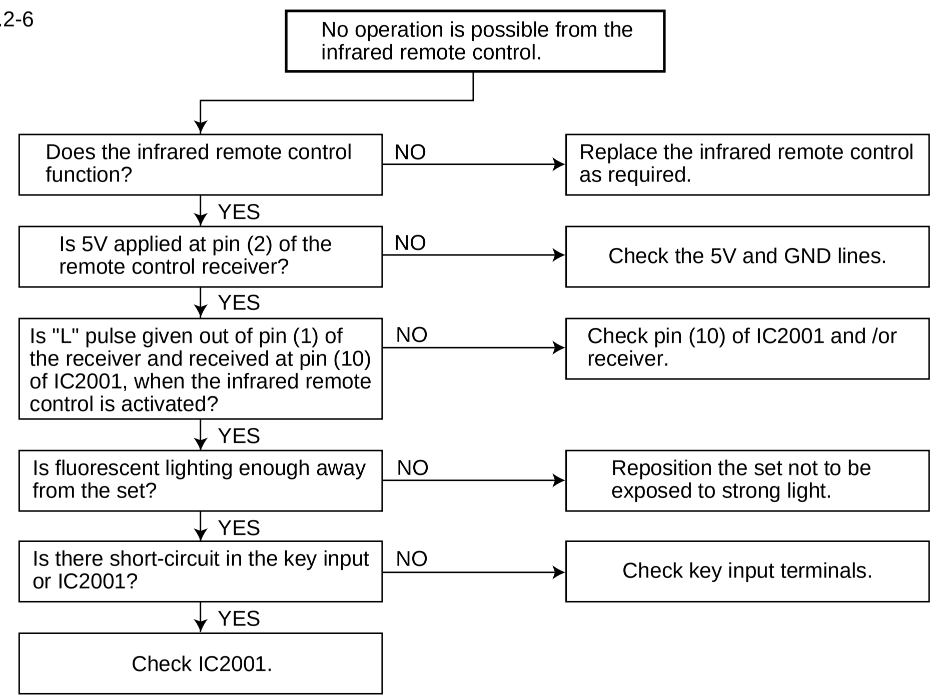


FLOW CHART NO.2-6

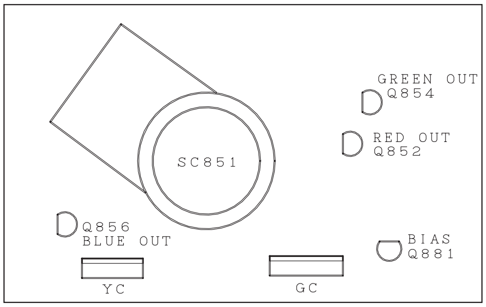


INFRARED R/C TROUBLESHOOTING

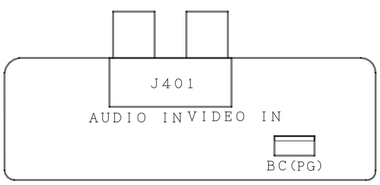
FLOW CHART NO.2-8



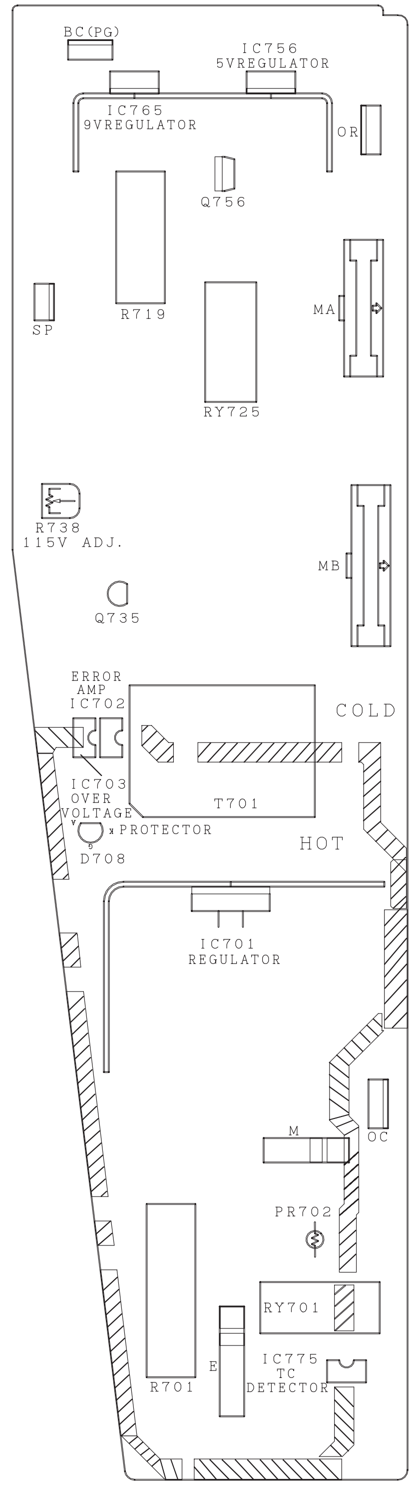
CHASSIS LAYOUT



PWB-B



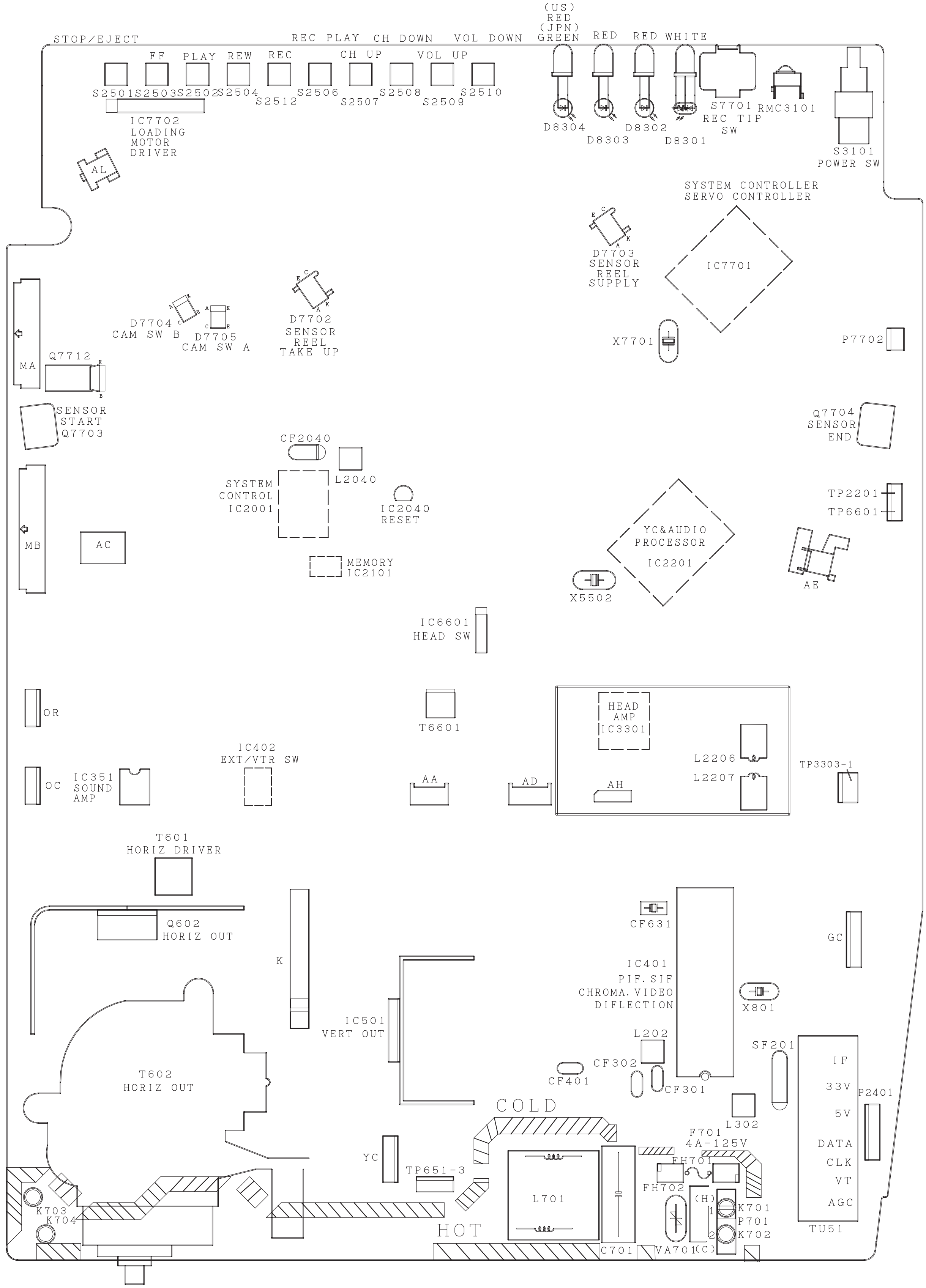
PWB-D



PWB-C

H G F E D C B A

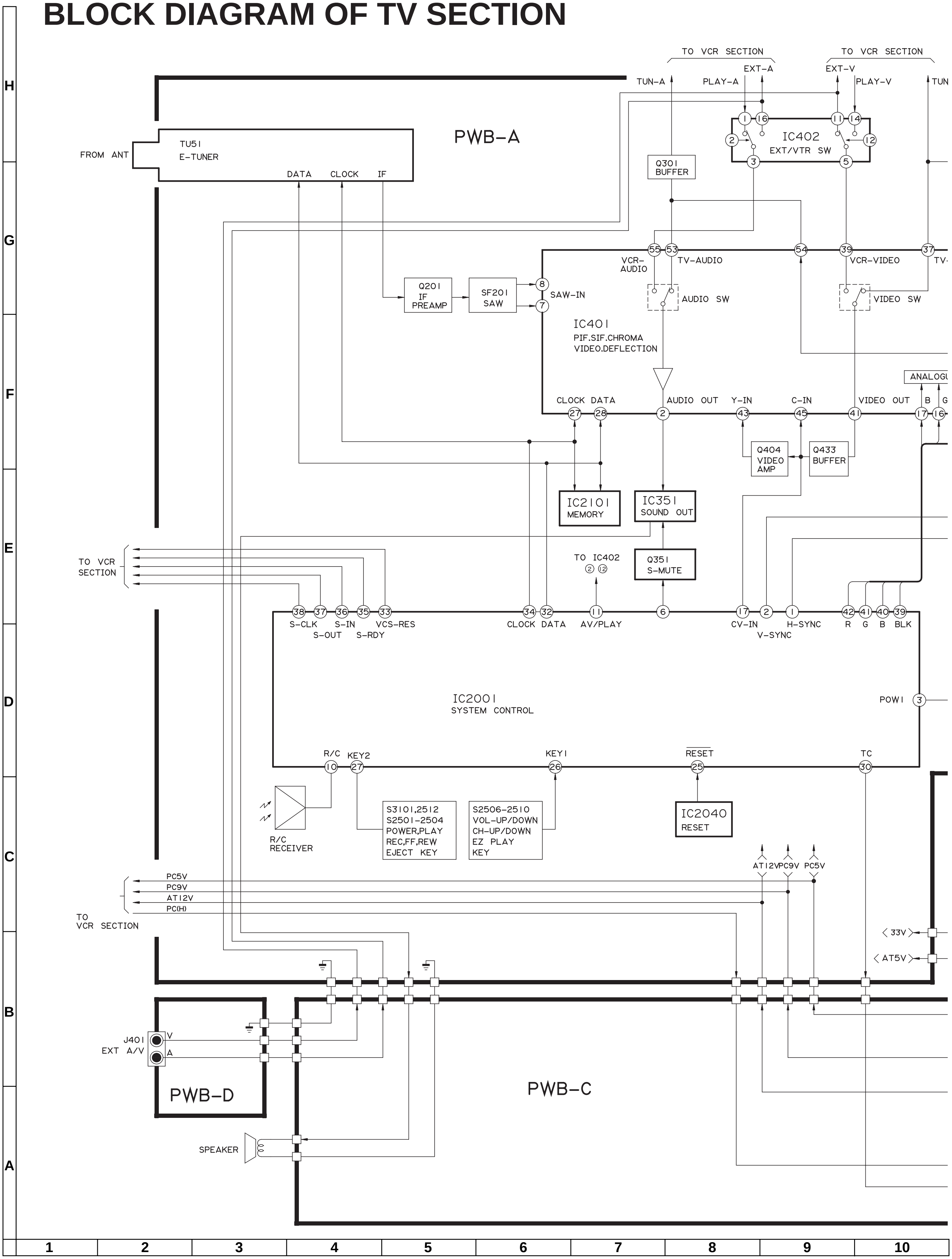
1 2 3 4 5 6 7 8 9 10

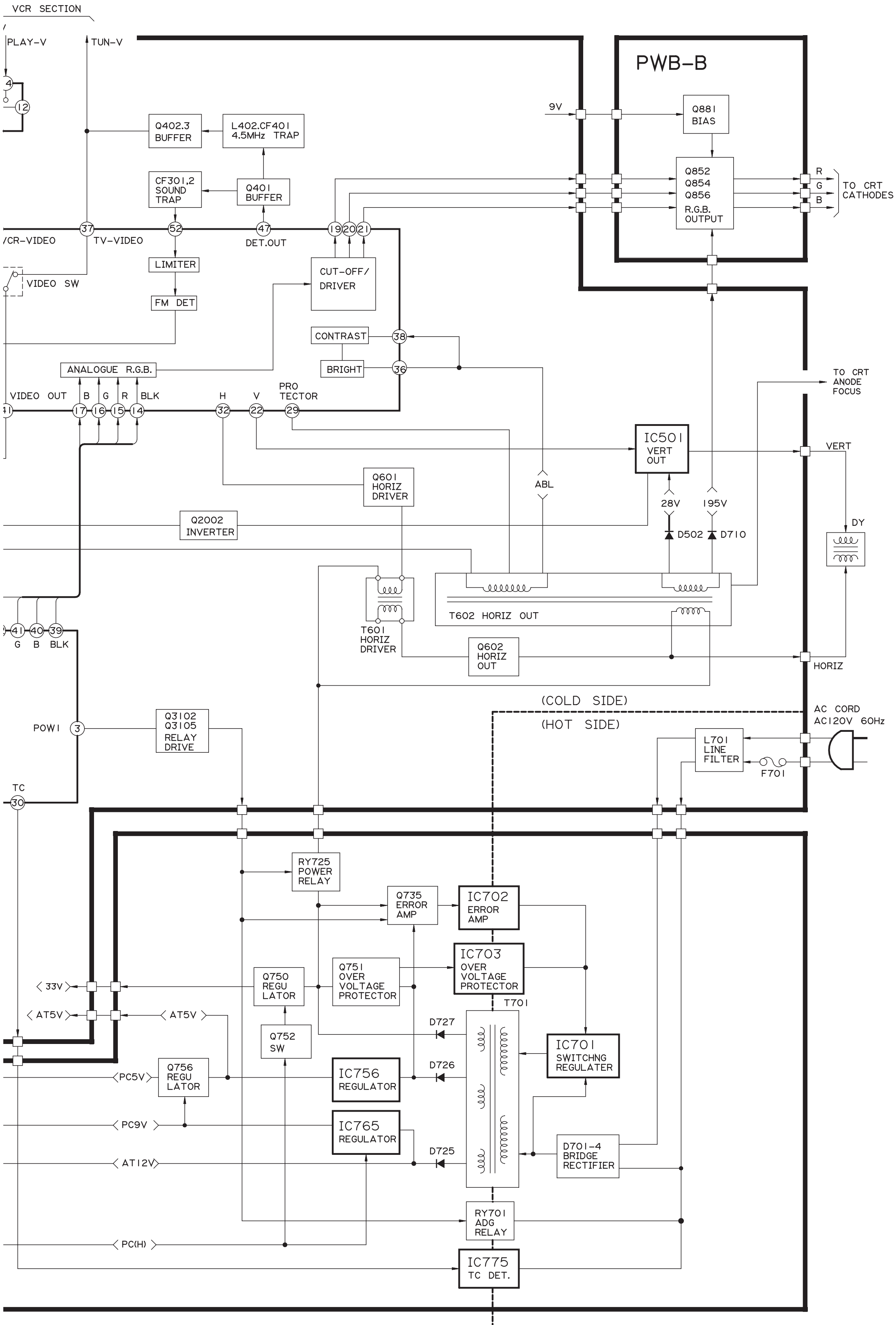


PWB-A

10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM OF TV SECTION

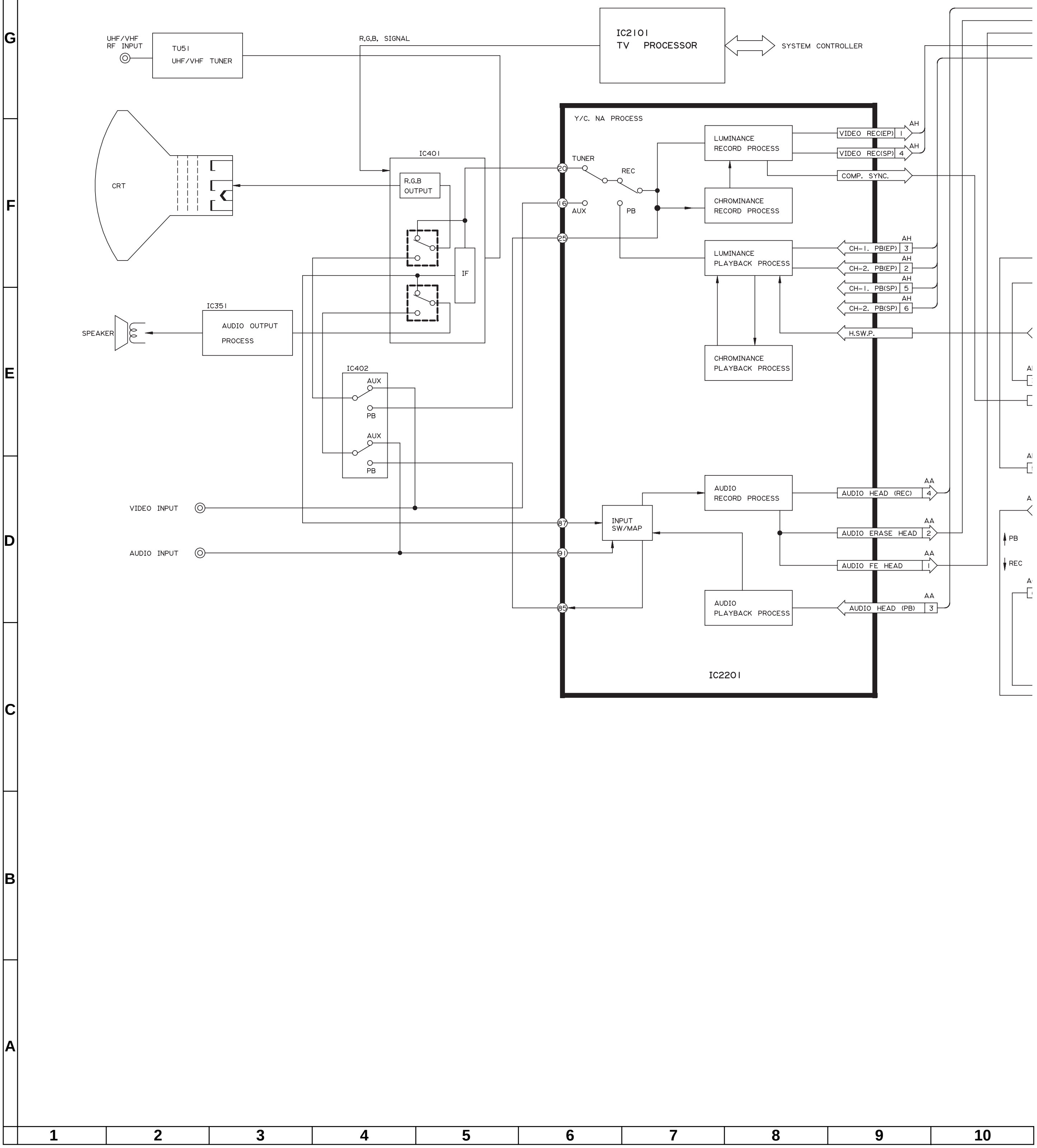


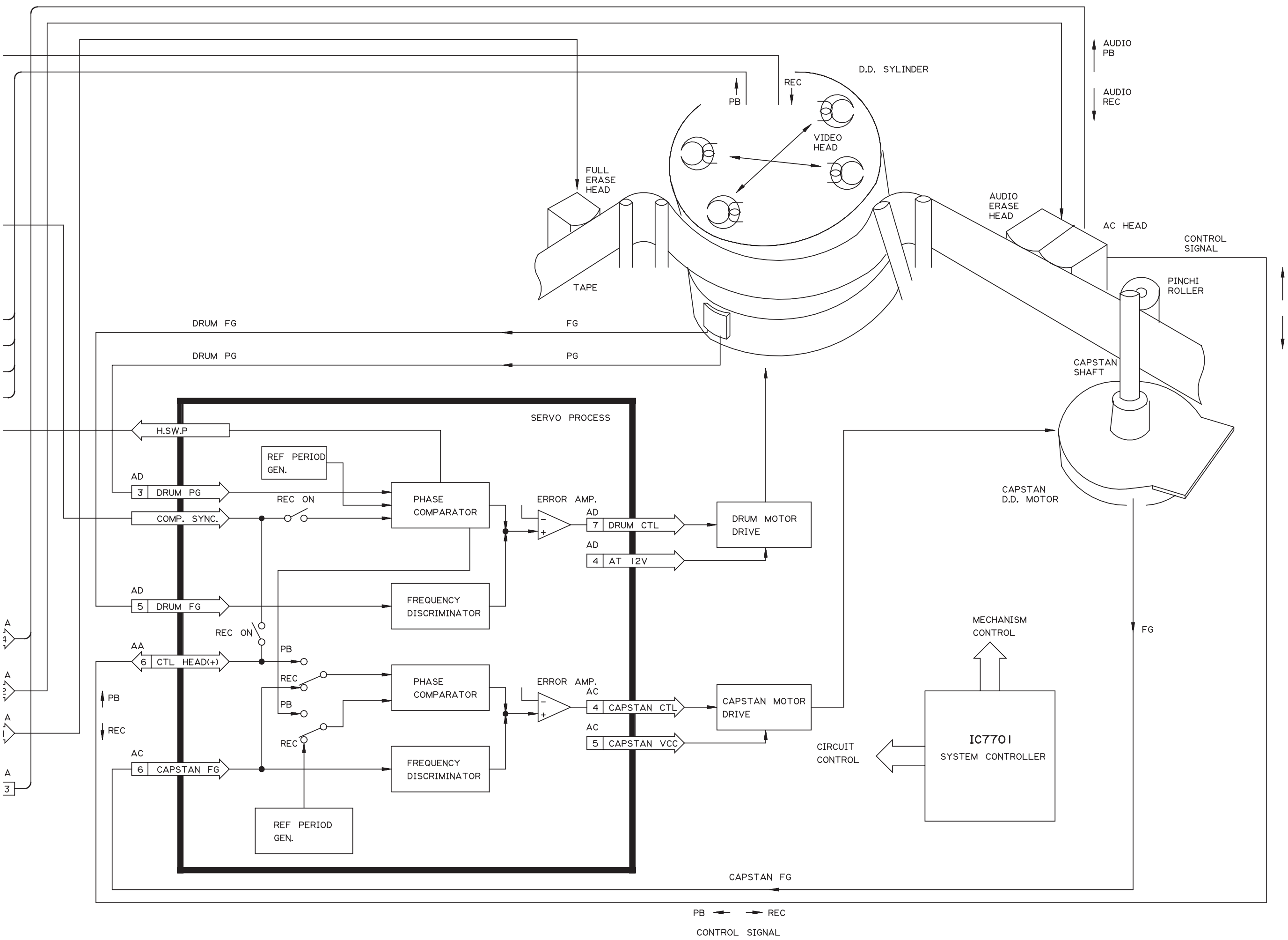


10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM OF VCR SECTION

■ OVERALL BLOCK DIAGRAM

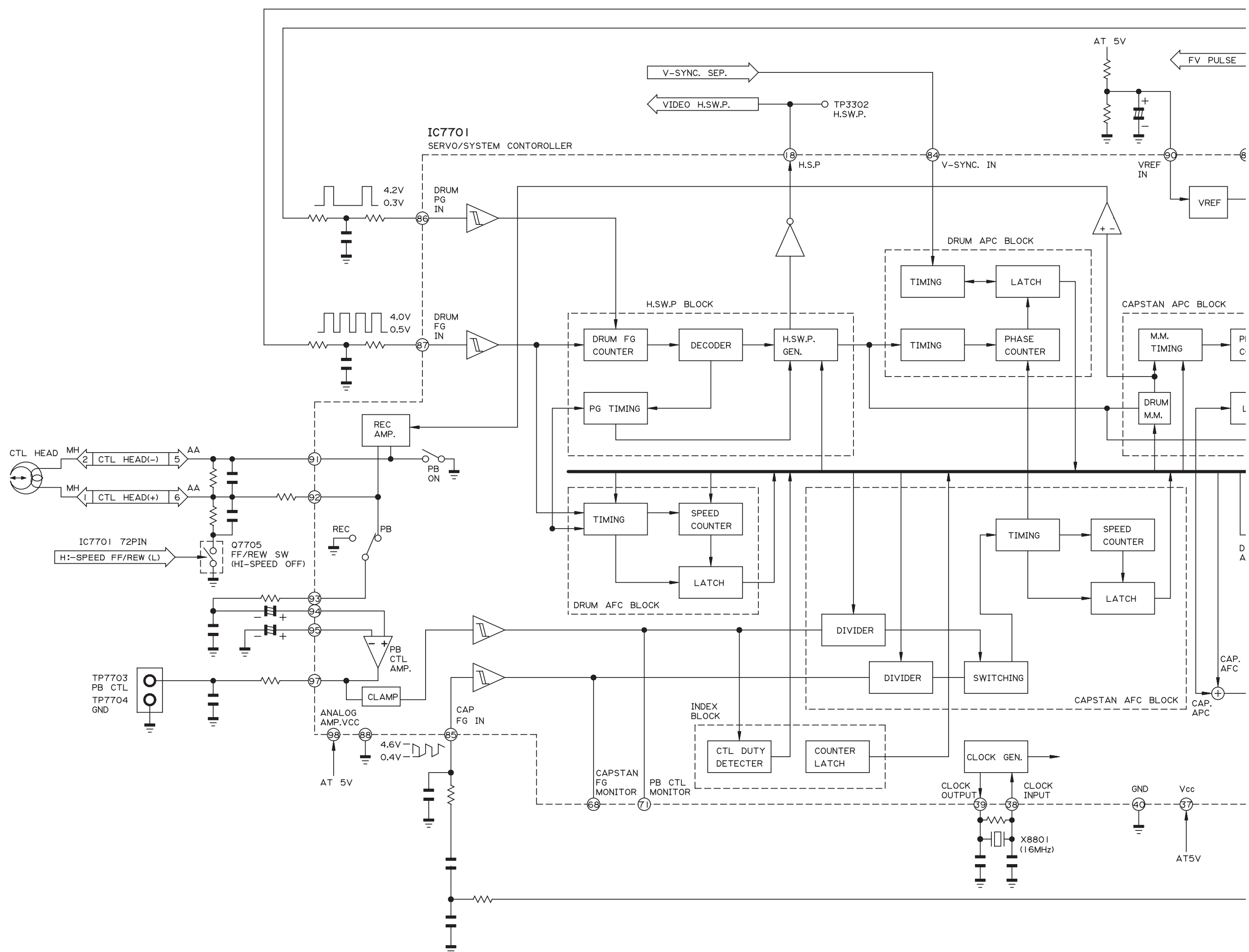


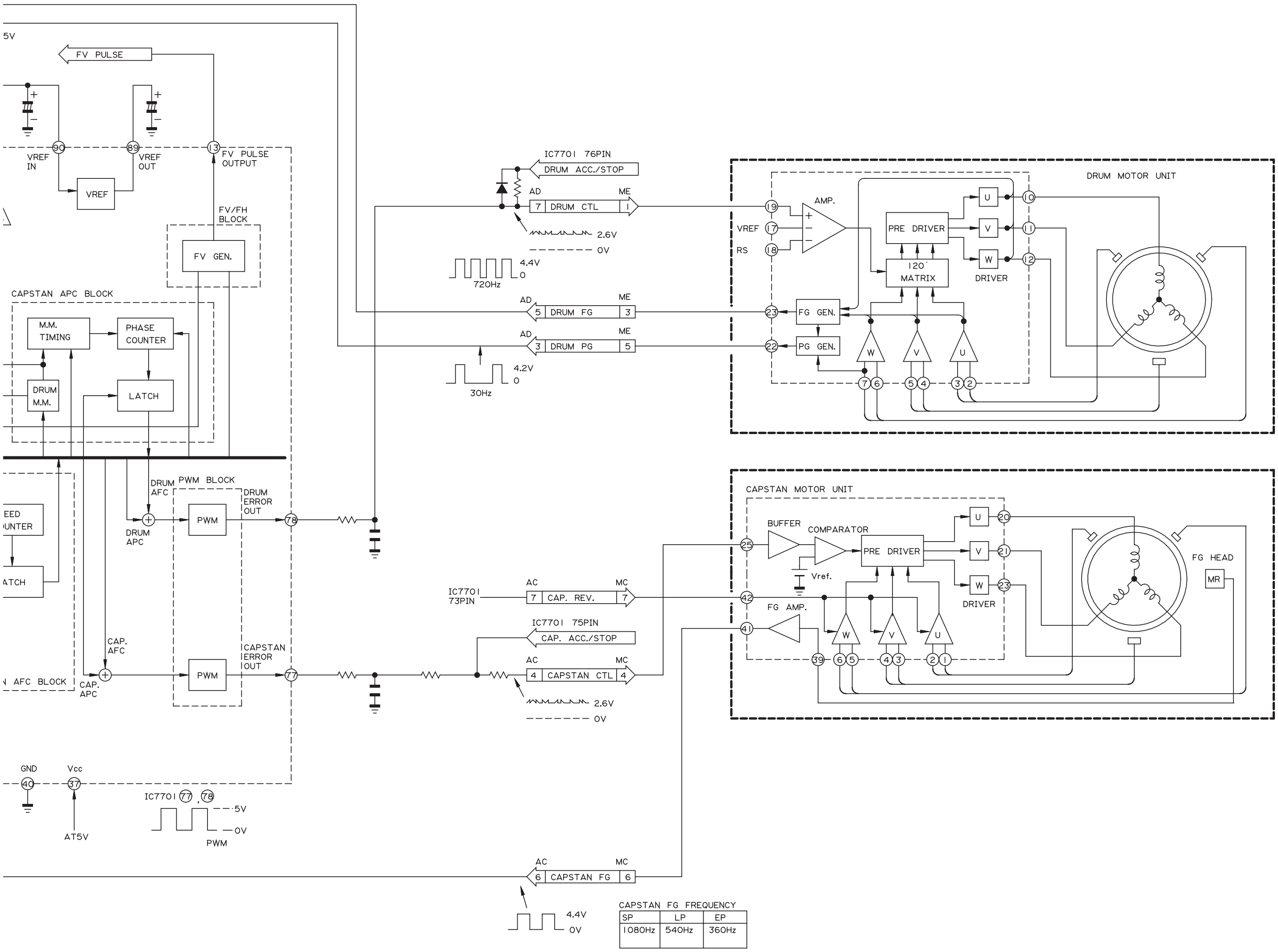


10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM OF VCR SECTION

■ SERVO PROCESS BLOCK DIAGRAM

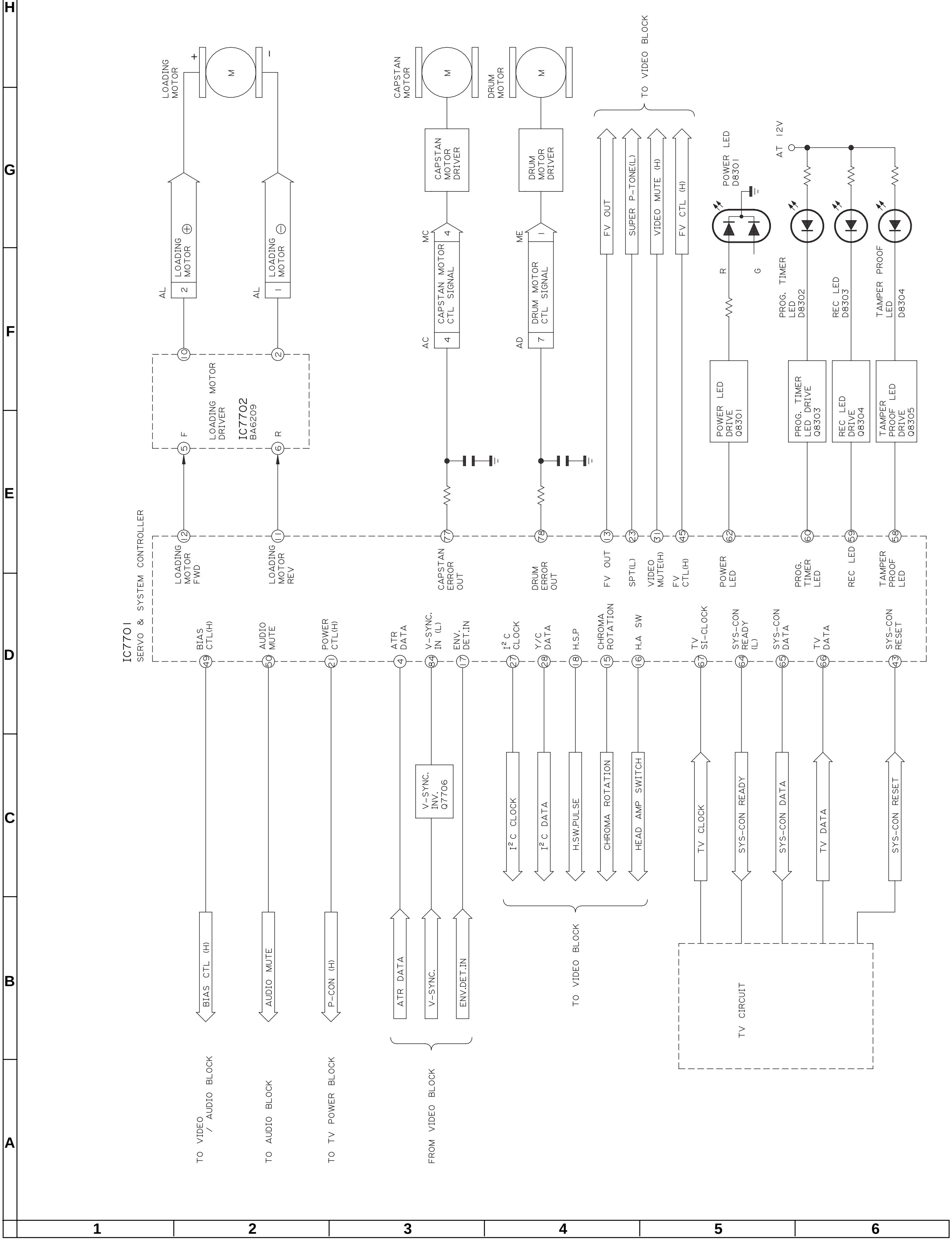




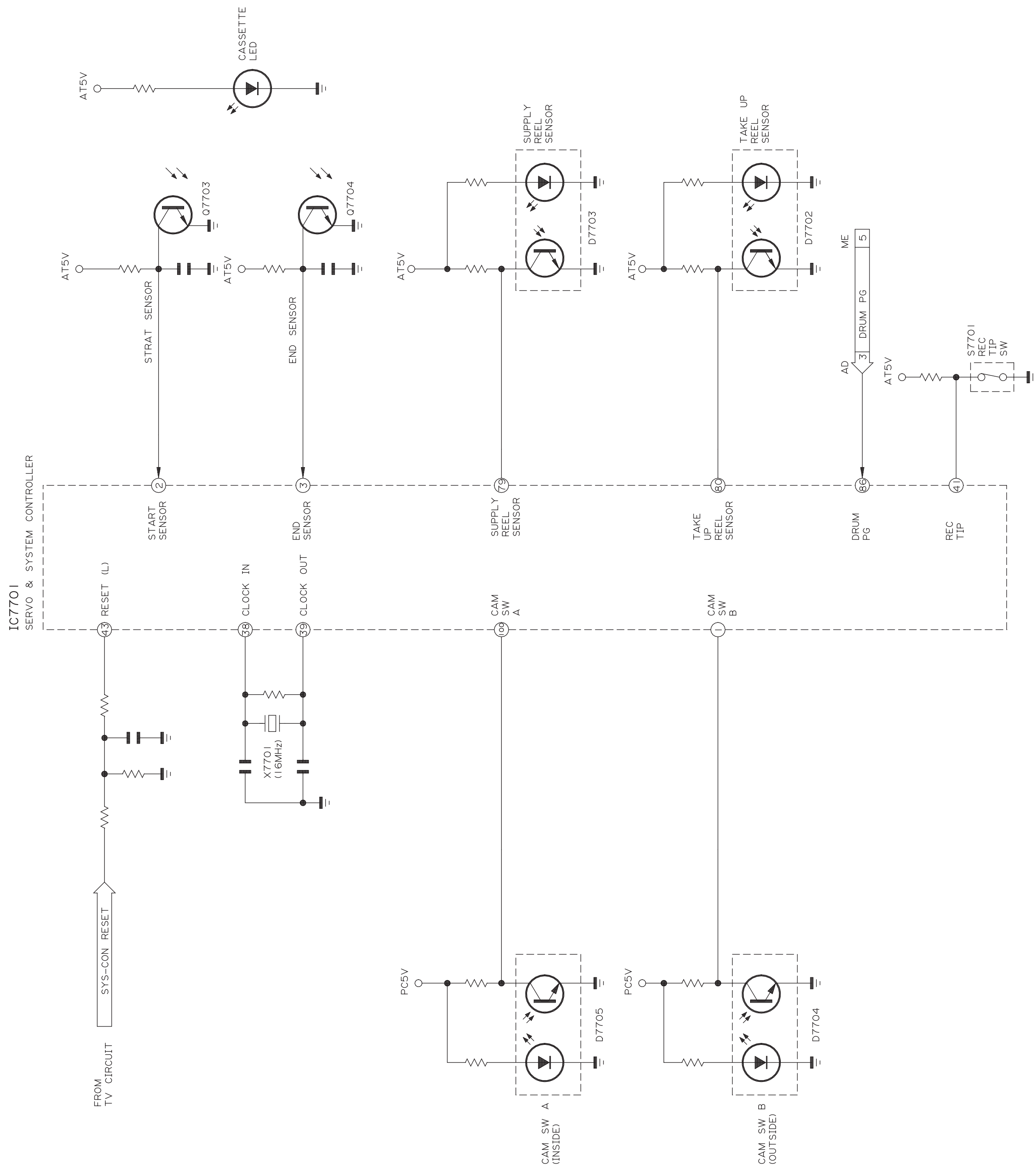
10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM OF VCR SECTION

■ SYSTEM CONTROL BLOCK DIAGRAM



■ SAFETY DEVICE BLOCK DIAGRAM

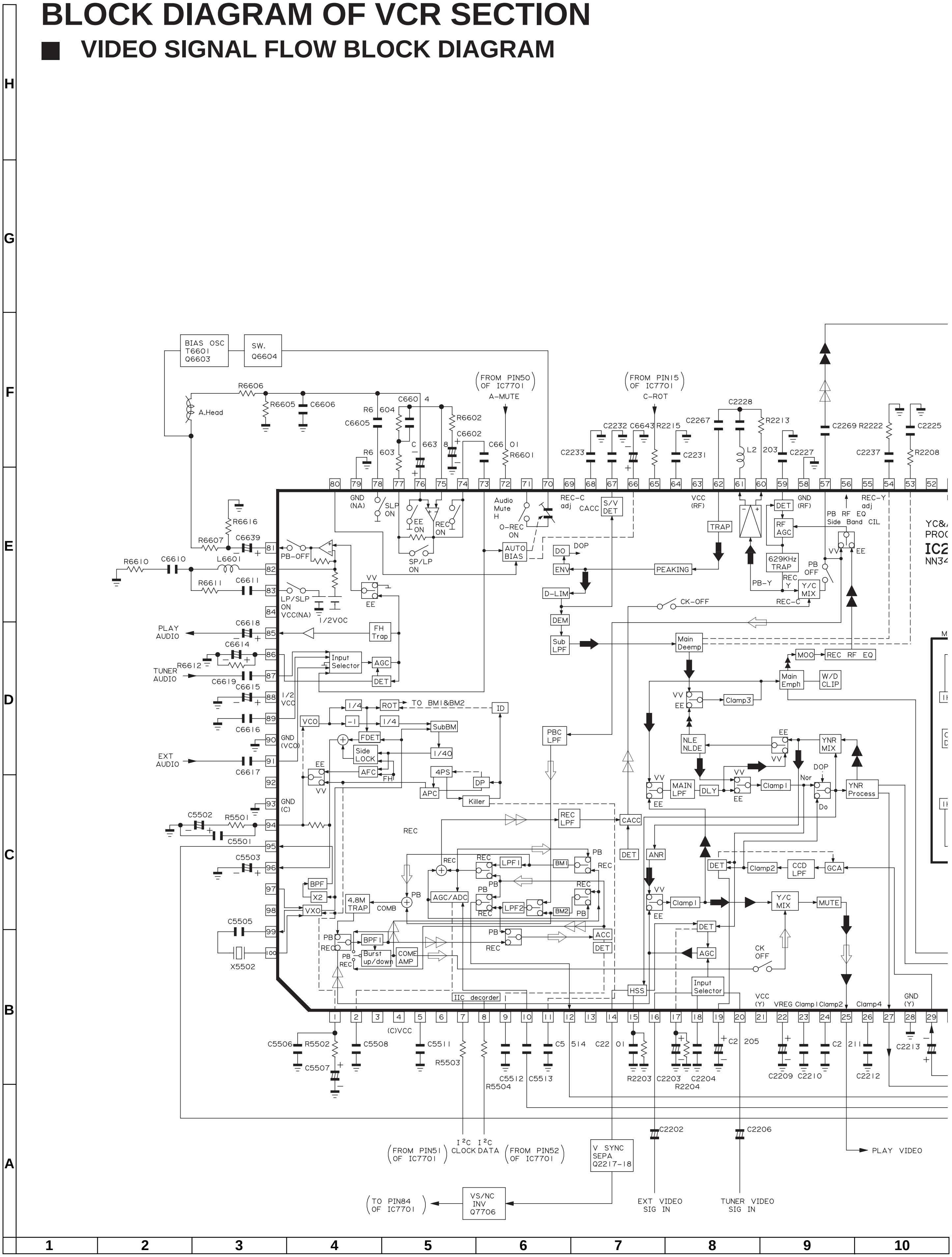


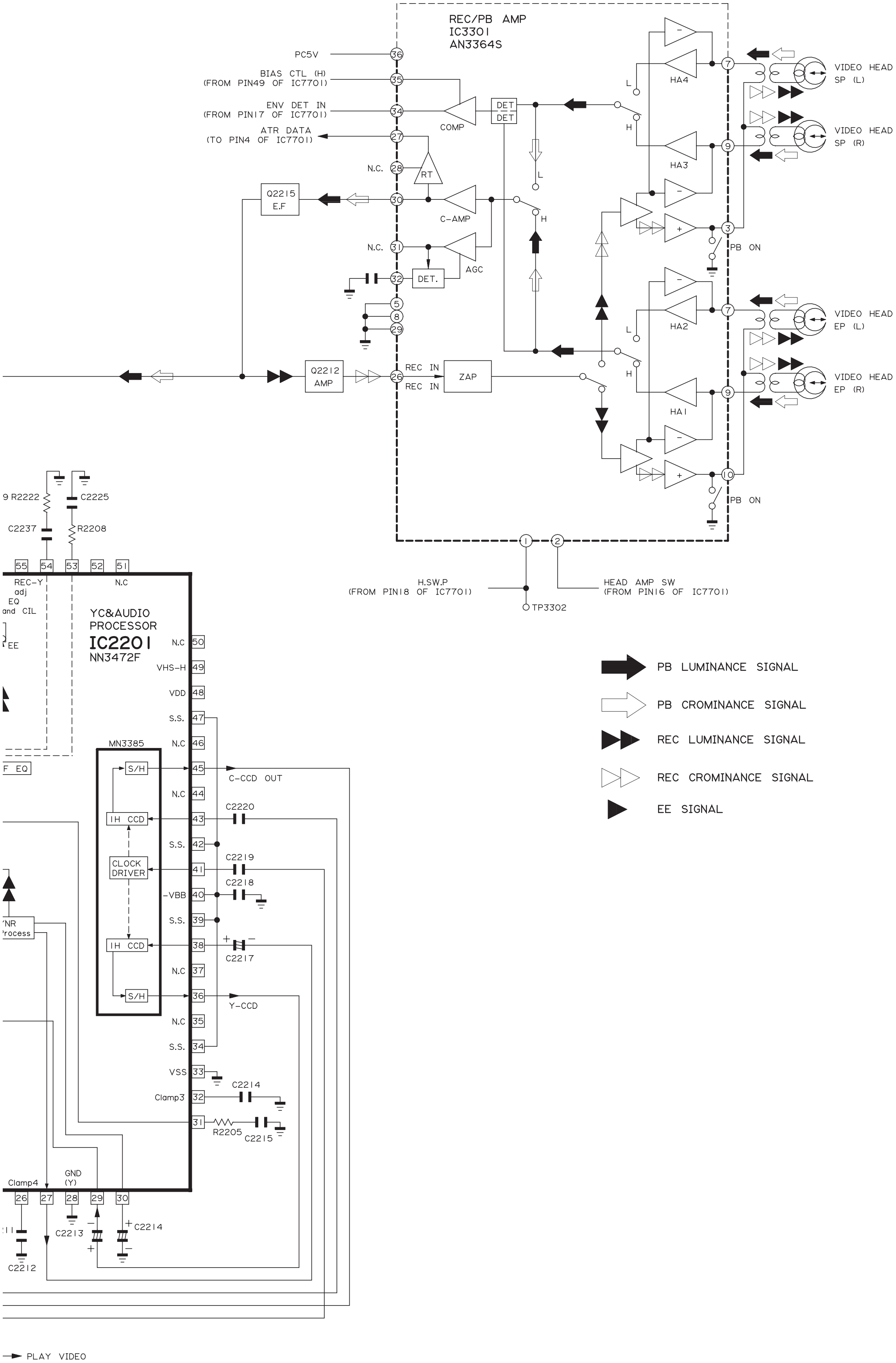
H	G	F	E	D	C	B	A

1	2	3	4	5	6

BLOCK DIAGRAM OF VCR SECTION

■ VIDEO SIGNAL FLOW BLOCK DIAGRAM





PB LUMINANCE SIGNAL

PB CROMINANCE SIGNAL

REC LUMINANCE SIGNAL

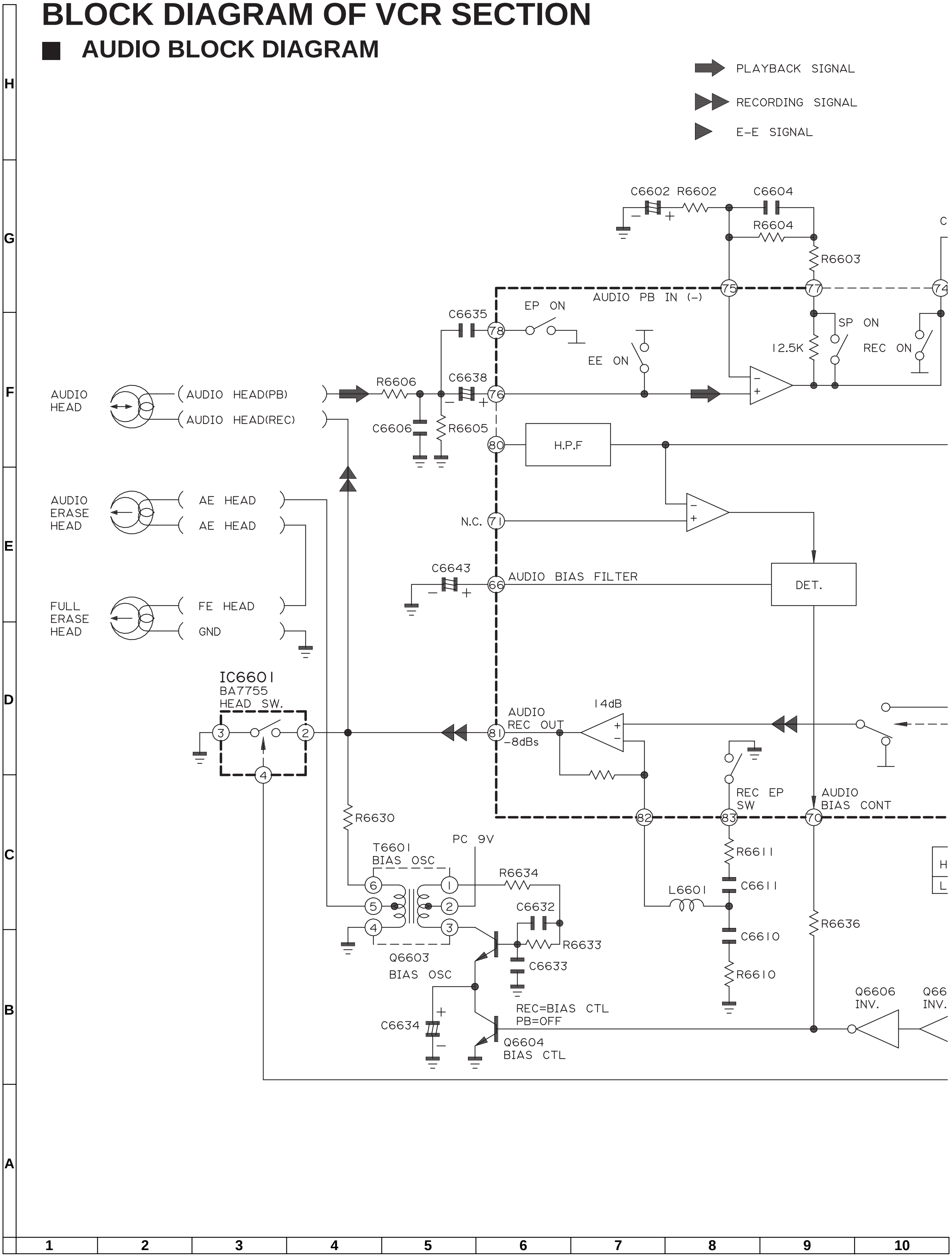
REC CROMINANCE SIGNAL

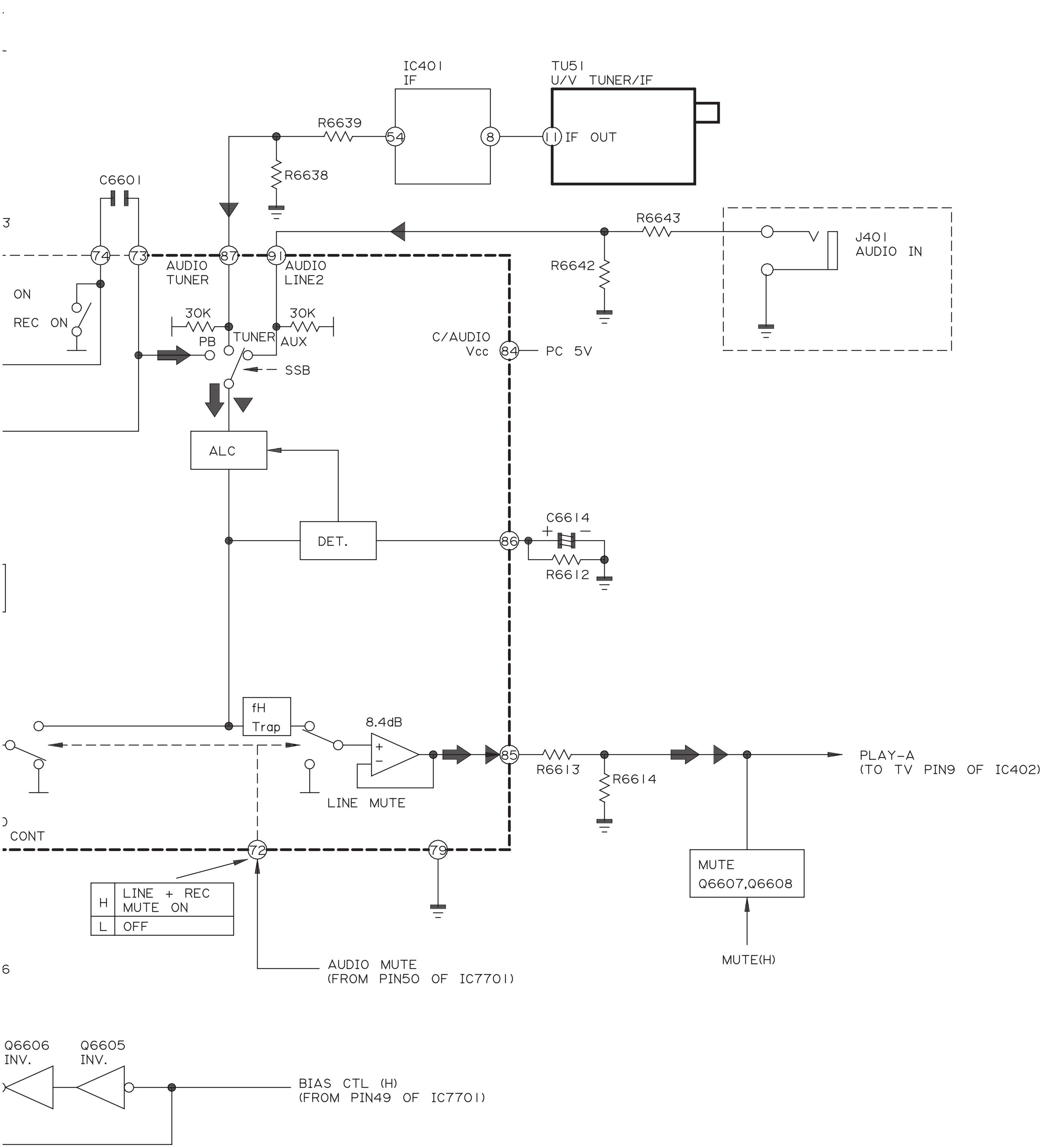
EE SIGNAL

10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM OF VCR SECTION

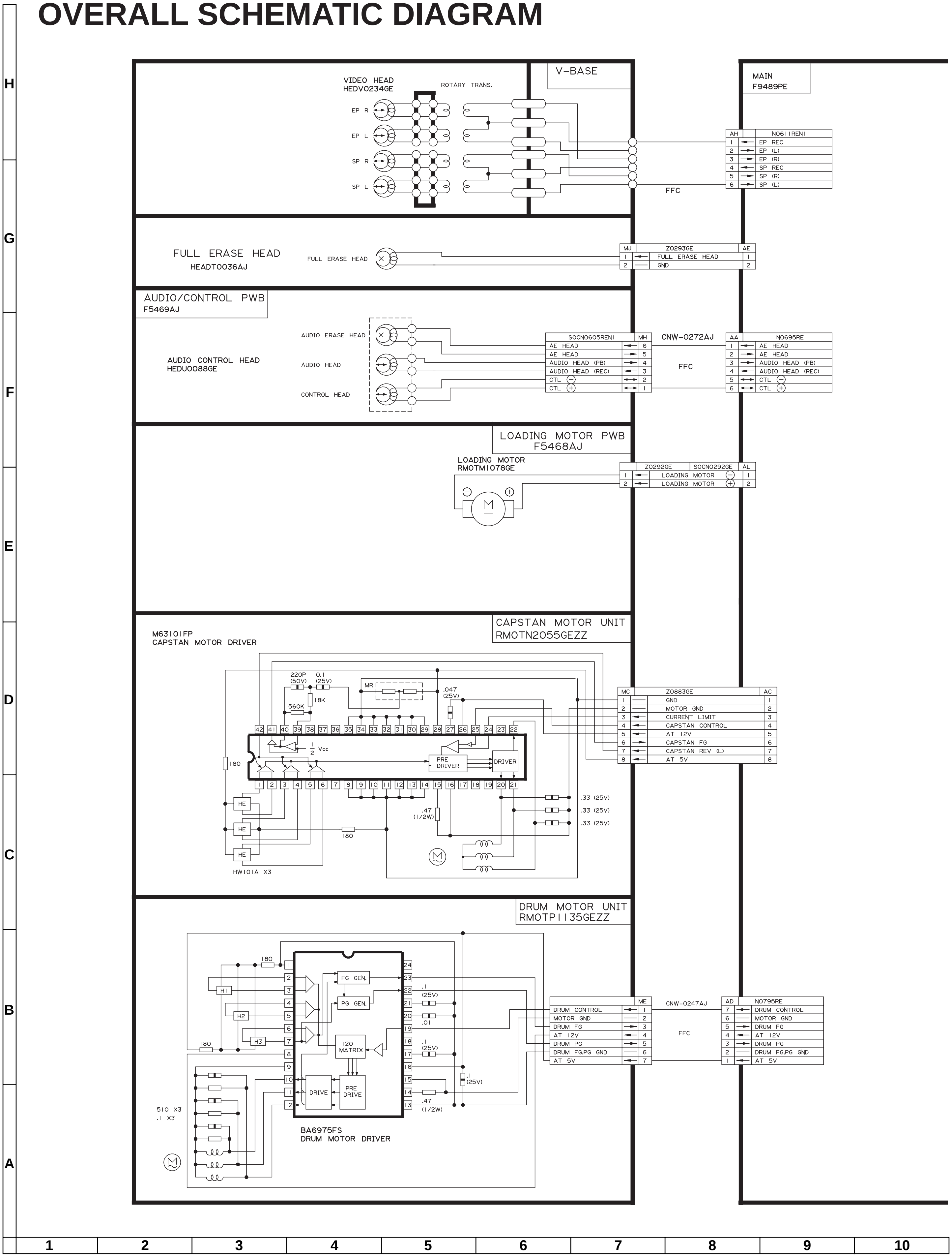
■ AUDIO BLOCK DIAGRAM

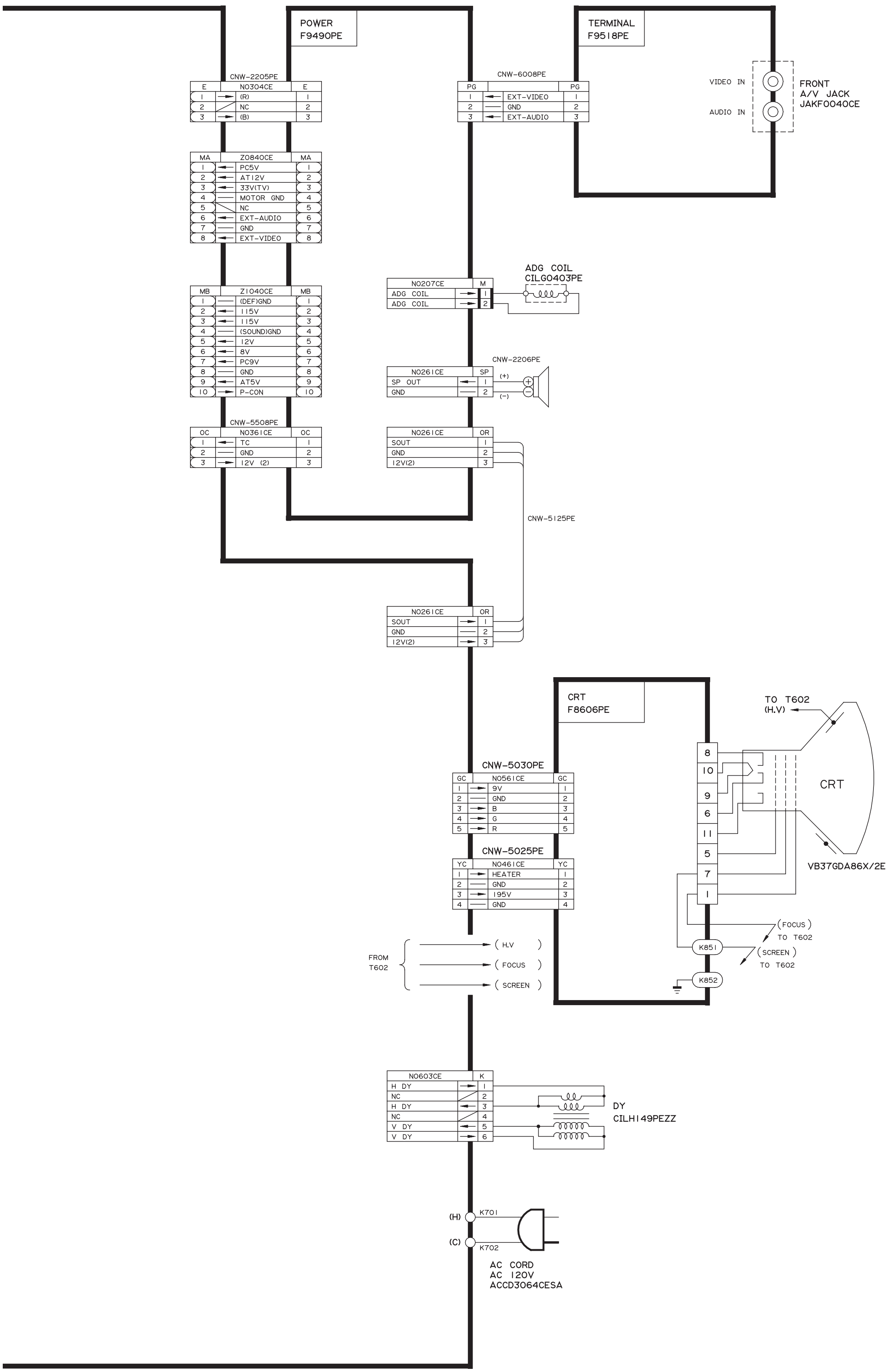




10	11	12	13	14	15	16	17	18	19

OVERALL SCHEMATIC DIAGRAM





10	11	12	13	14	15	16	17	18	19

DESCRIPTION OF SECTION SCHEMATIC DIAGRAM

NOTE:

1. *The unit of resistance "ohm" is omitted (K:1000 ohms, M:1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are 50V, unless otherwise noted.*
4. *All capacitors are µF, unless otherwise noted. (P: µµF)*
5. *(G) indicates ±2% tolerance may be used.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000µV B&W or Color signal.*

WAVEFORM MEASUREMENT CONDITIONS:

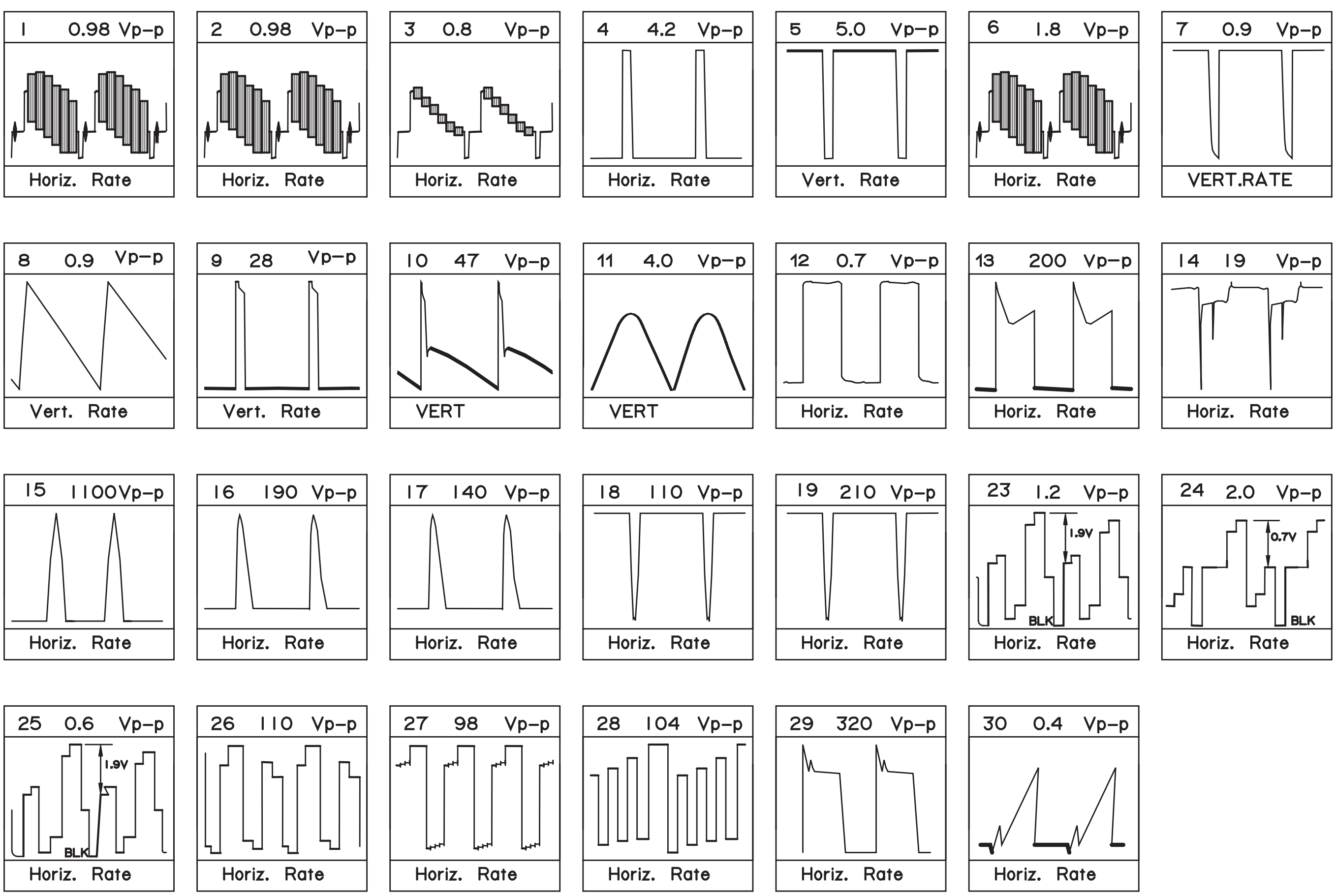
1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

⚠ AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK= X-RAY RELATED PARTS.

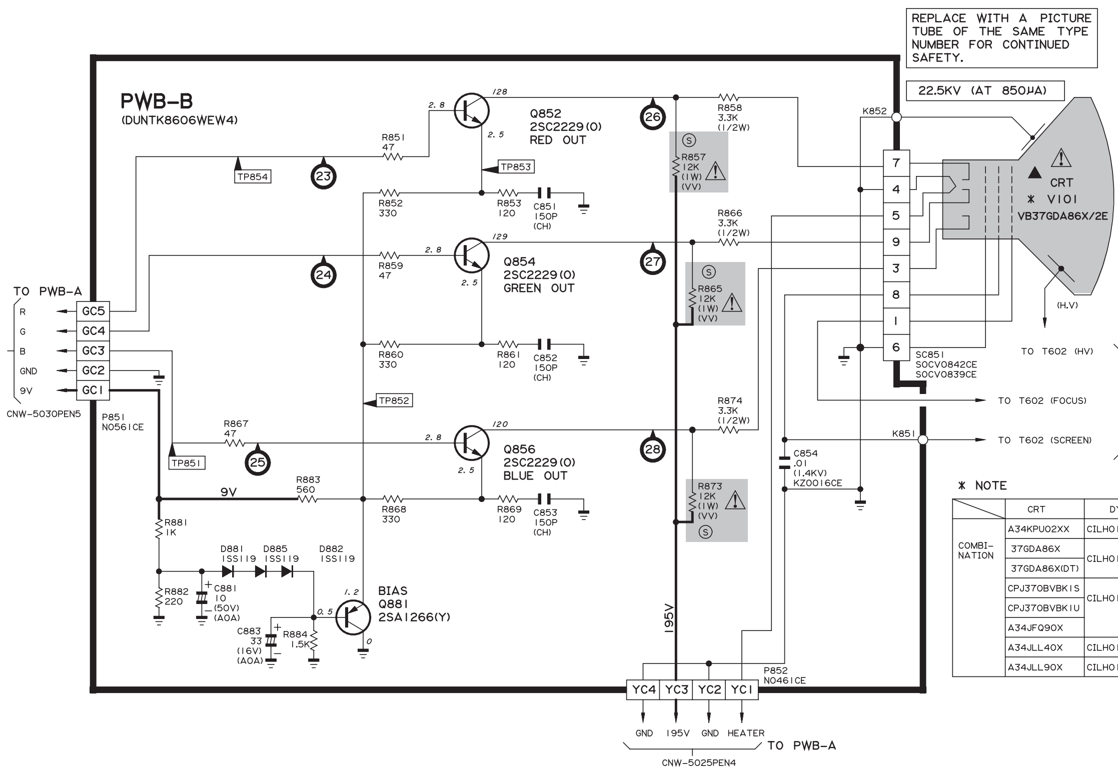
DRGANNES MARQUES ⚠ ET HACHRES ( ): PIECES RELATIVES A LA SECURITE.
MARQUE ▲ : PIECS RELATIVE AUX RAYONS X.

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



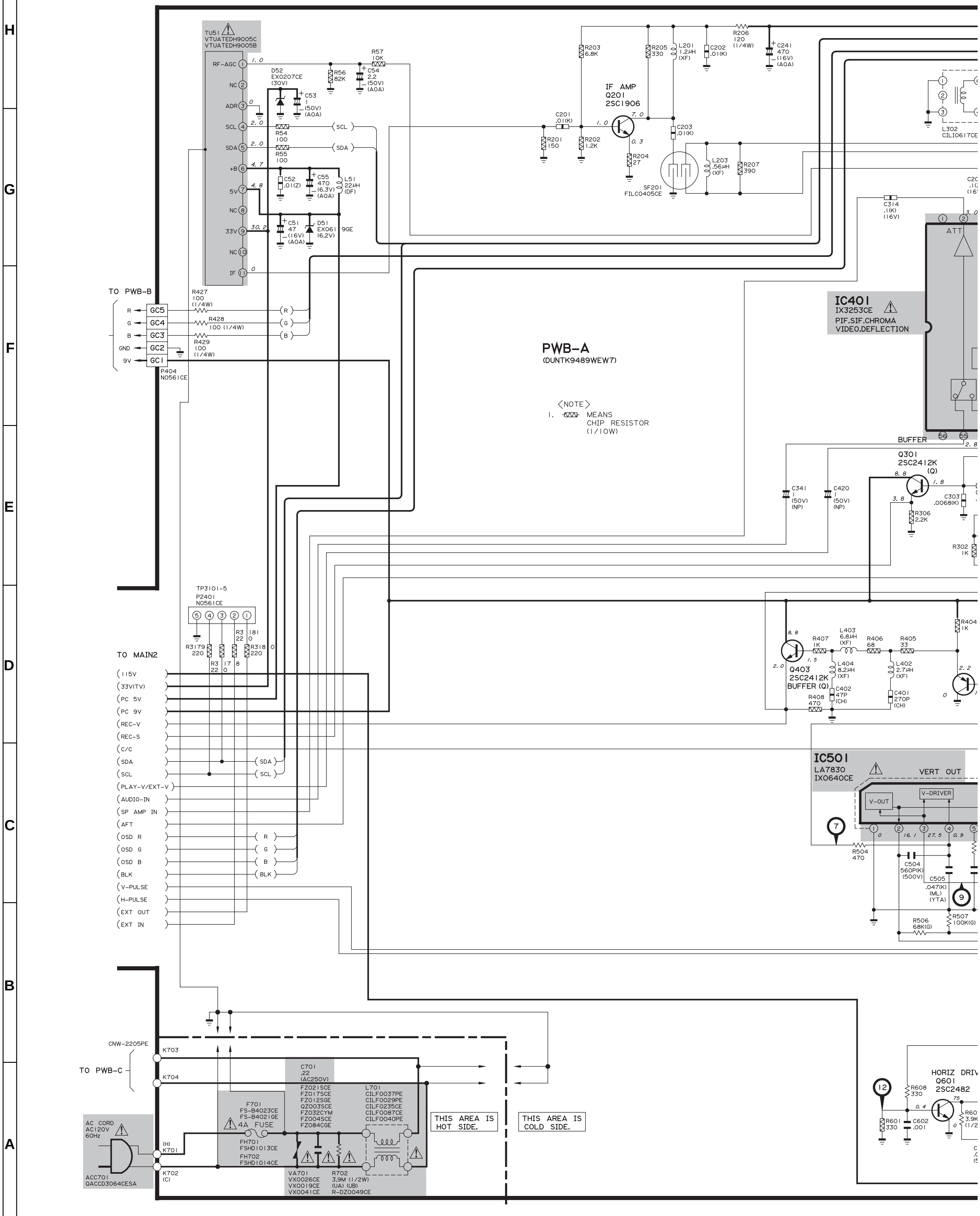
SCHEMATIC DIAGRAM : CRT Unit



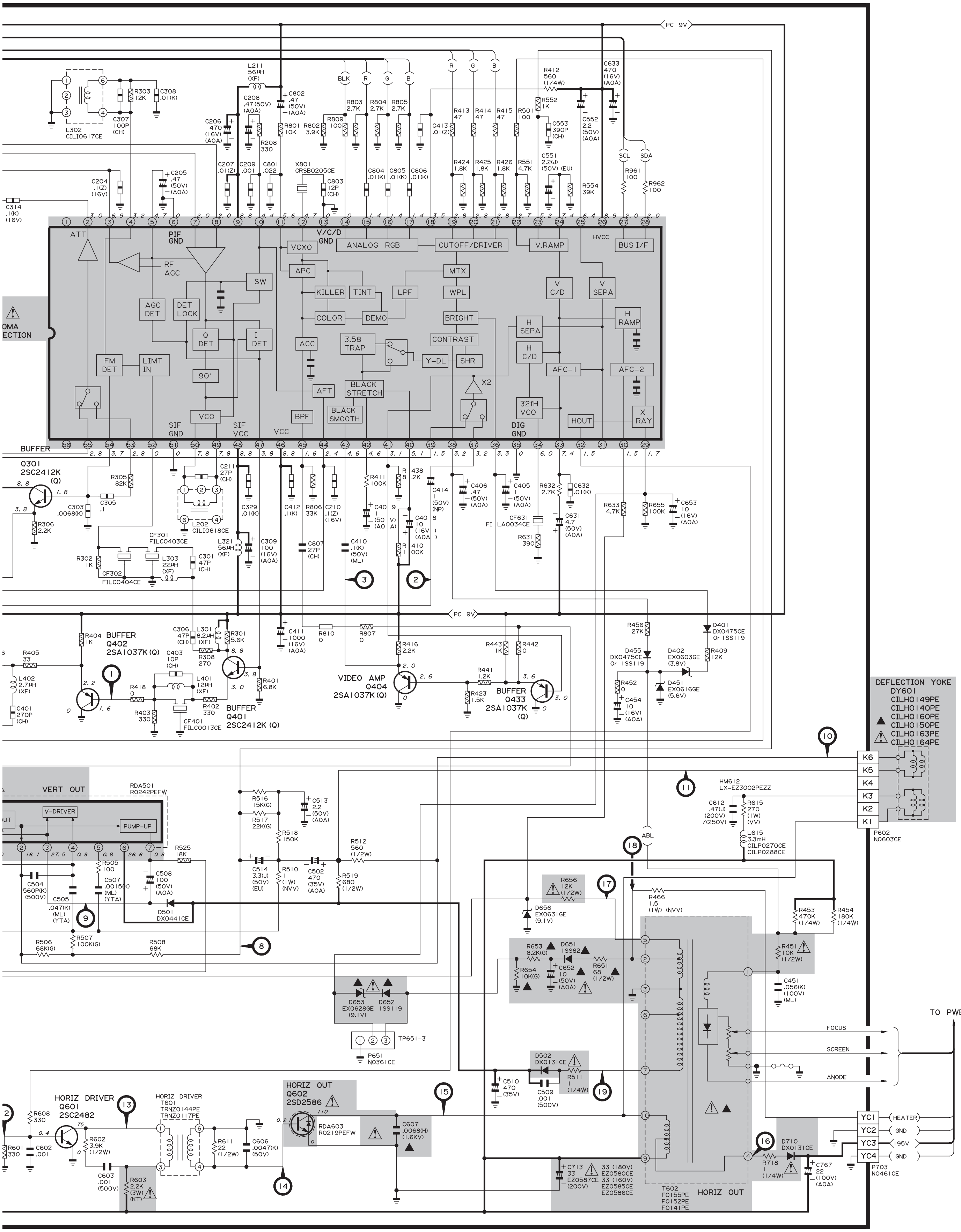
✱ NOTE

	CRT	DY			
COMBI-NATION	A34KPU02XX	CILH0149PEN1	CILH0164PEN1		
	37GDA86X	CILH0149PE	CILH0164PEZZ		
	37GDA86X(DT)				
	CPJ370BVBK1S	CILH0140PE	CILH 0160PE	CILH 0140PEN1	CILH 0150PE
	CPJ370BVBK1U				
	A34JFQ90X				
	A34JLL40X	CILH0163PE			
	A34JLL90X	CILH0163PE			

SCHEMATIC DIAGRAM : MAIN-1 Unit (TV Section)

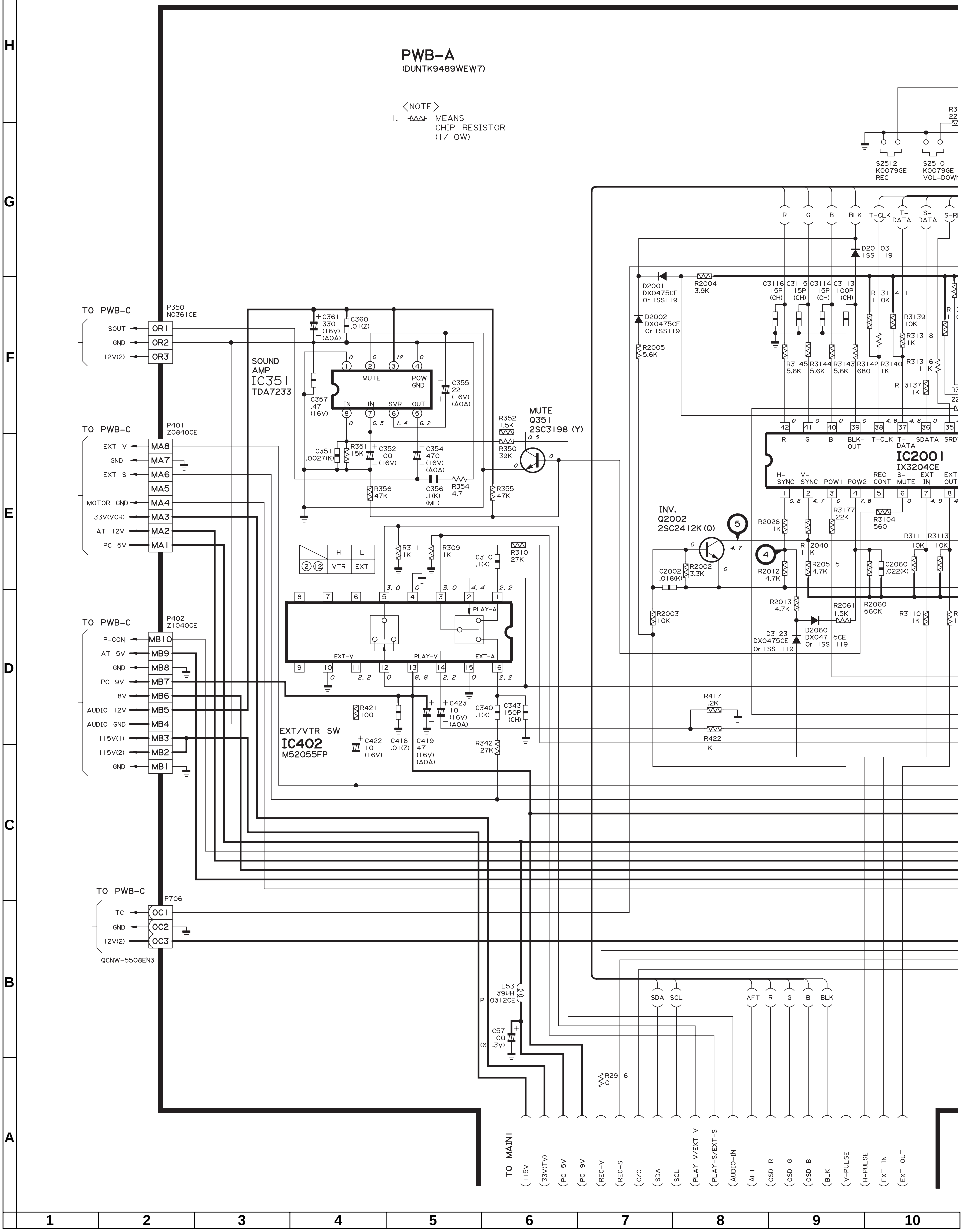


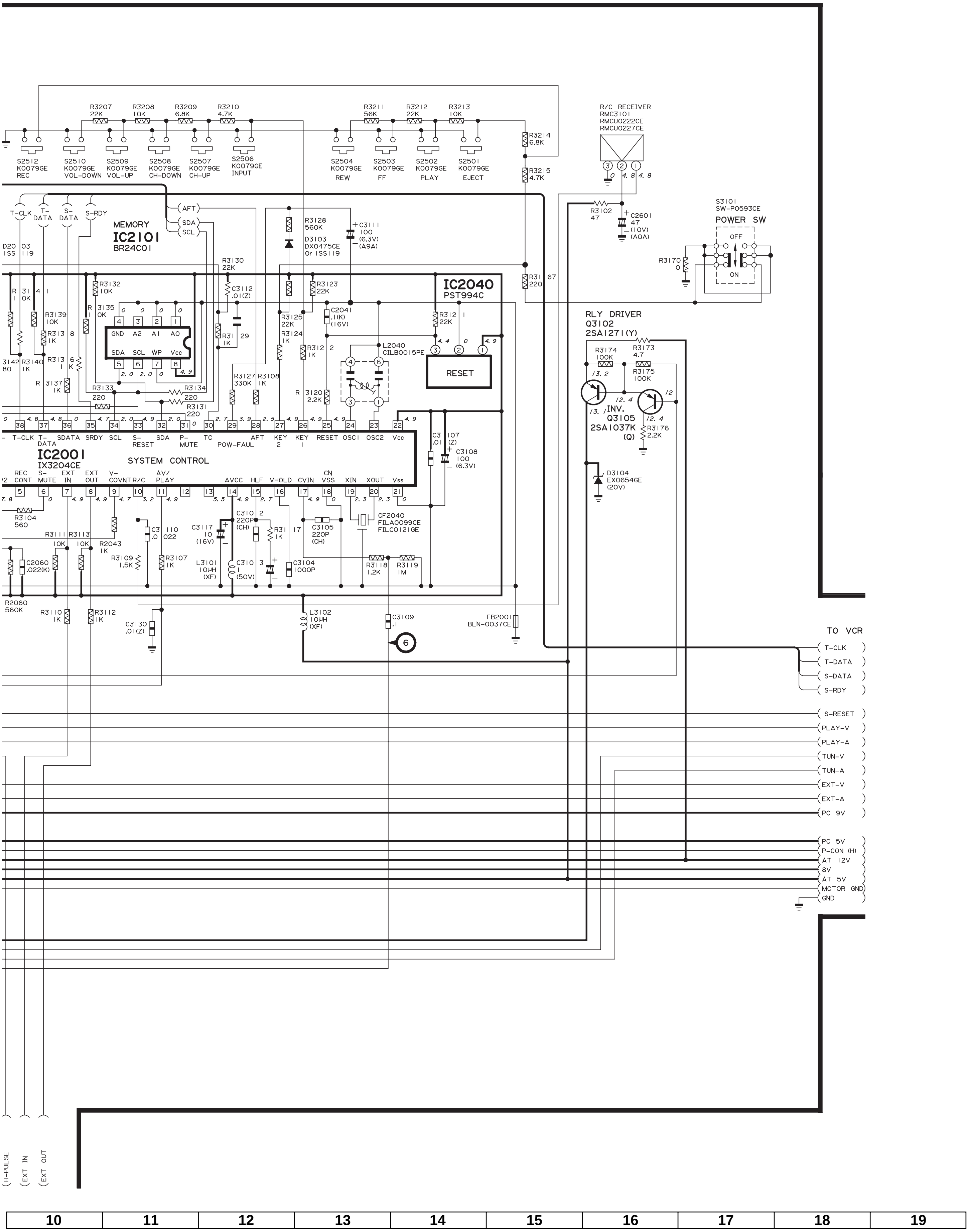
1	2	3	4	5	6	7	8	9	10



10	11	12	13	14	15	16	17	18	19

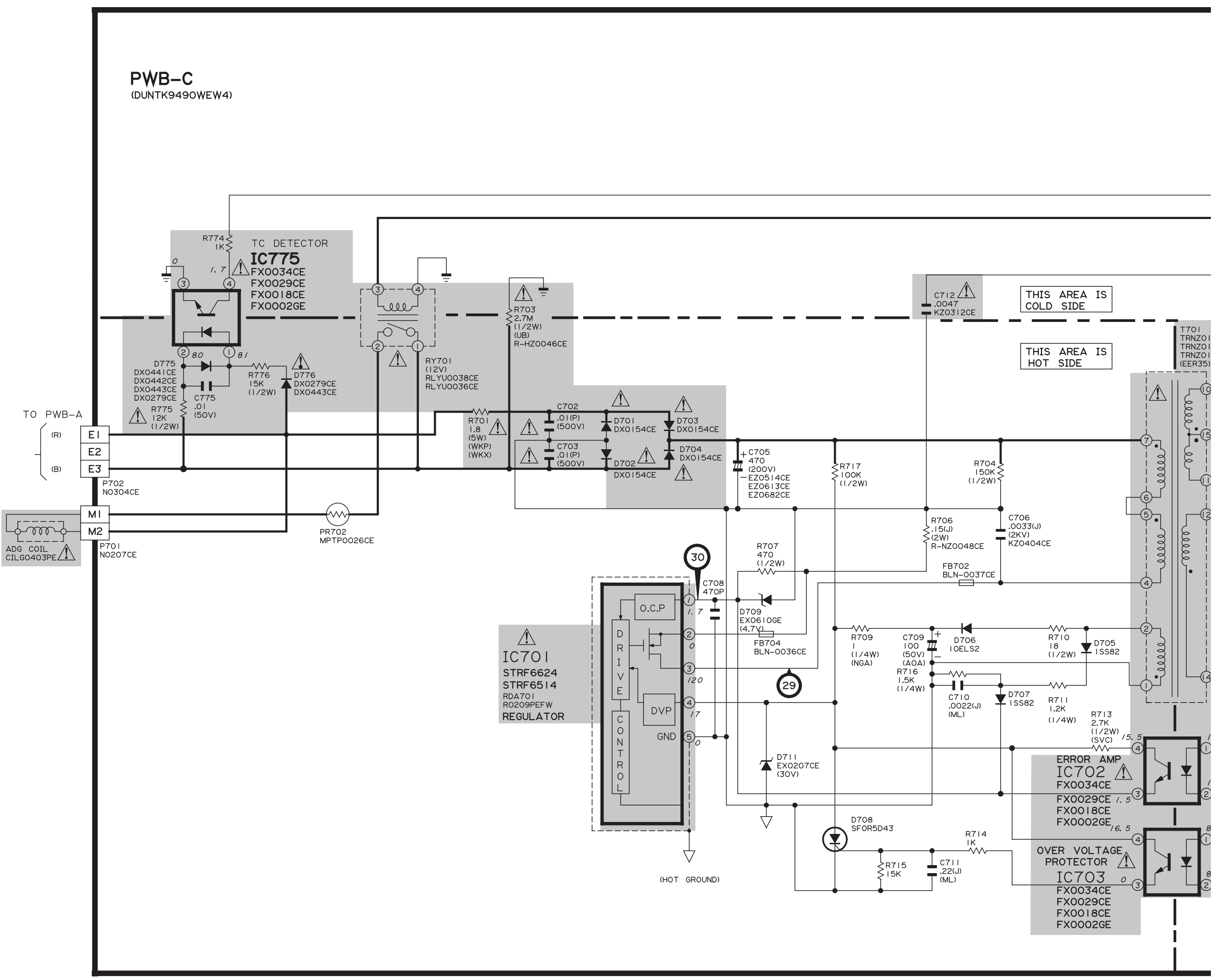
SCHEMATIC DIAGRAM : MAIN-2 Unit (TV Section)

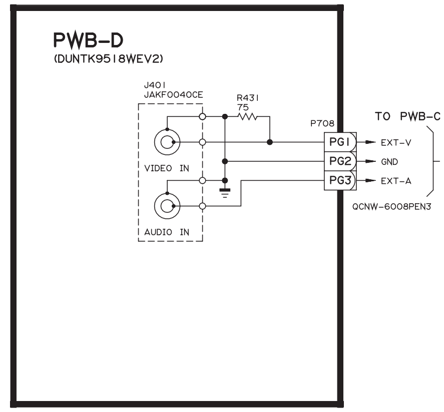


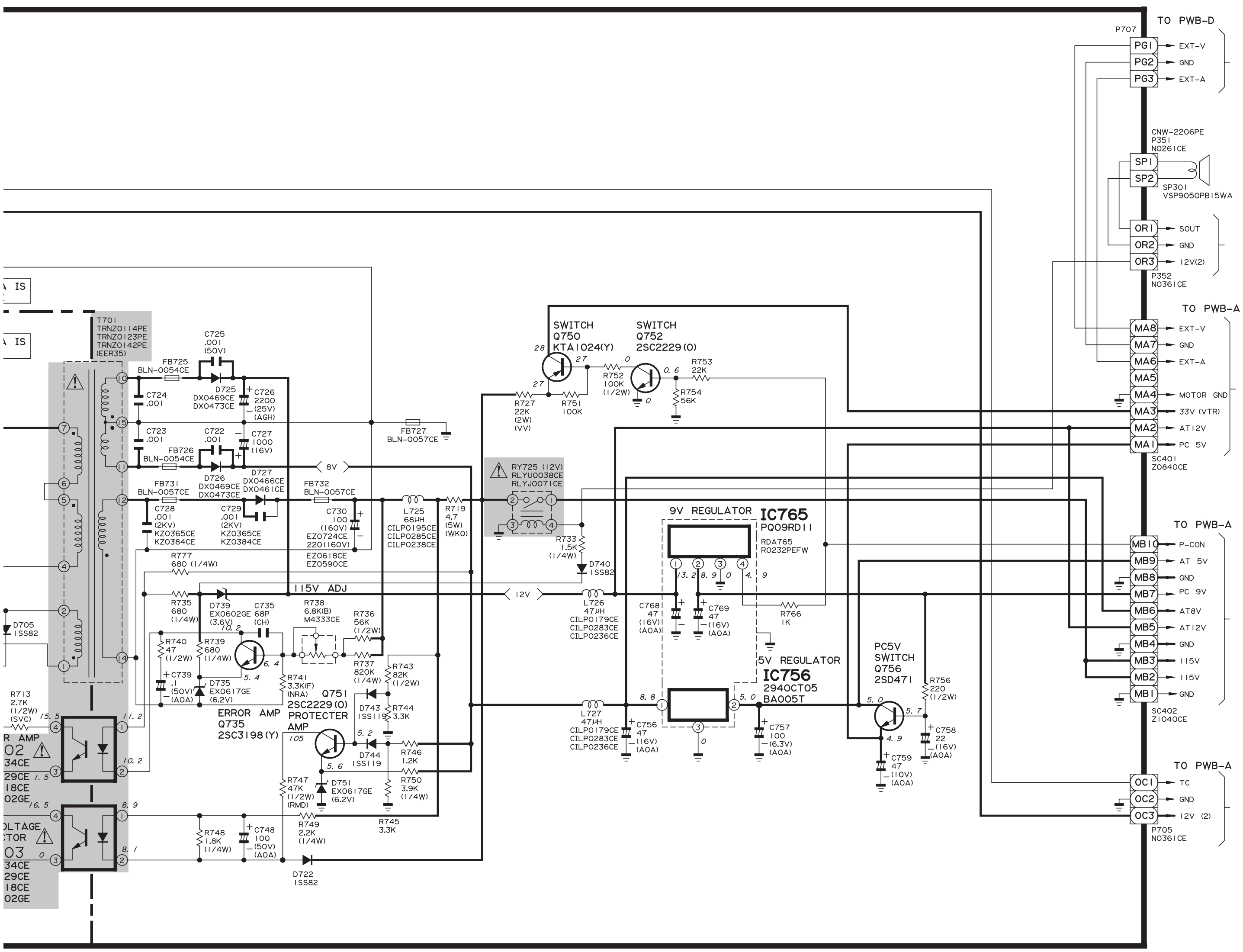


R/C RECEIVER
RMC3101
RMCU0222CE
RMCU0227CE
S2512 K0079GE REC
S2510 K0079GE VOL-DOWN
S2509 K0079GE VOL-UP
S2508 K0079GE CH-DOWN
S2507 K0079GE CH-UP
S2506 K0079GE INPUT
S2504 K0079GE REW
S2503 K0079GE FF
S2502 K0079GE PLAY
S2501 K0079GE EJECT
S3101 SW-P0593CE
POWER SW
OFF
ON
MEMORY
IC2101
BR24C01
IC2040
PST994C
RESET
L2040
CILB0015PE
RLY DRIVER
Q3102
2SA1271(Y)
INV.
Q3105
2SA1037K
(Q)
D3104
EX0654GE
(20V)
D3103
DX0475CE
Or 1SS119
IC2001
IX3204CE
SYSTEM CONTROL
CF2040
FILA0099CE
FILC0121GE
FB2001
BLN-0037CE
TO VCR
T-CLK
T-DATA
S-DATA
S-RDY
S-RESET
PLAY-V
PLAY-A
TUN-V
TUN-A
EXT-V
EXT-A
PC 9V
PC 5V
P-CON (H)
AT 12V
8V
AT 5V
MOTOR GND
GND
H-PULSE
EXT IN
EXT OUT
10
11
12
13
14
15
16
17
18
19

SCHEMATIC DIAGRAM : POWER Unit (TV Section)

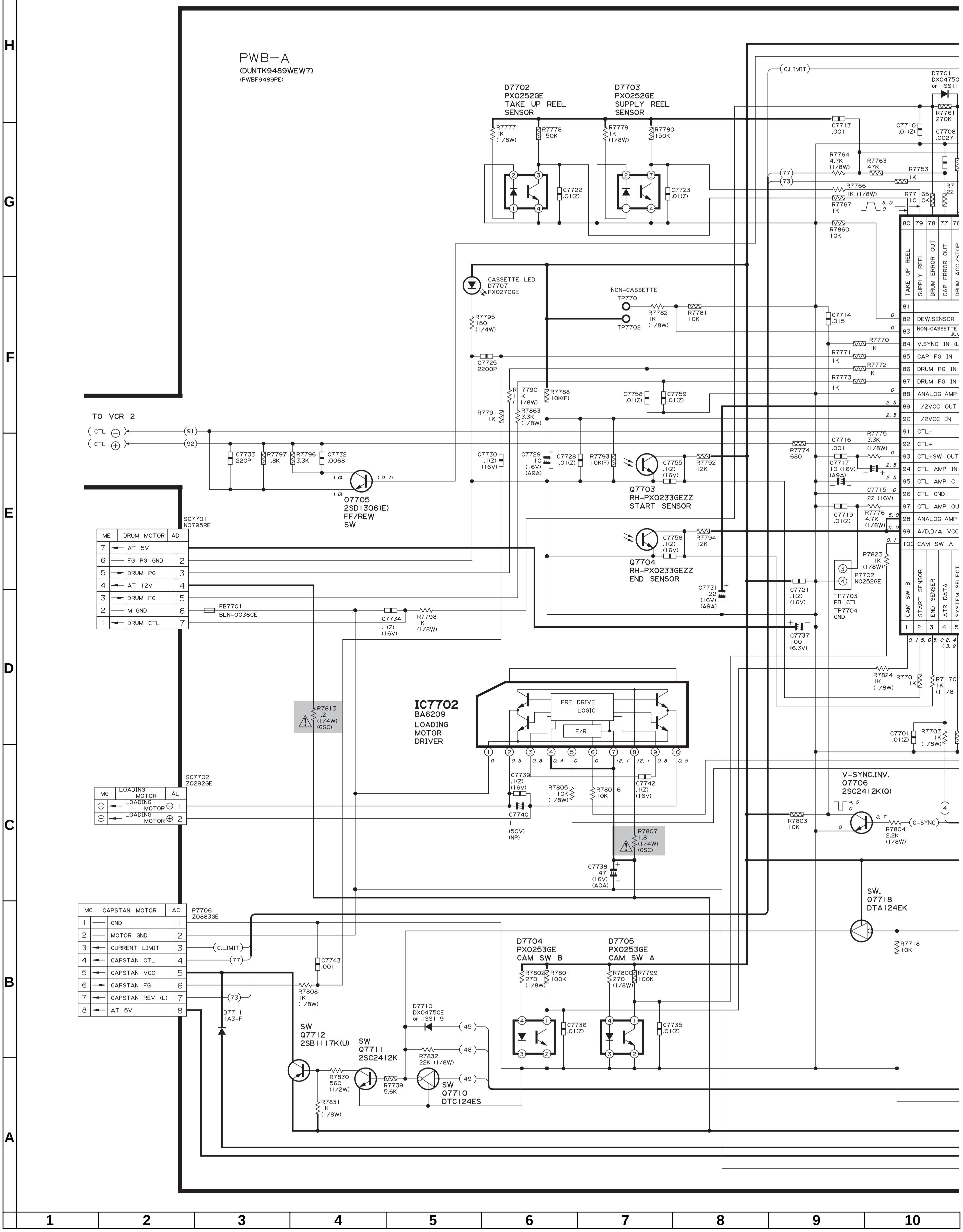


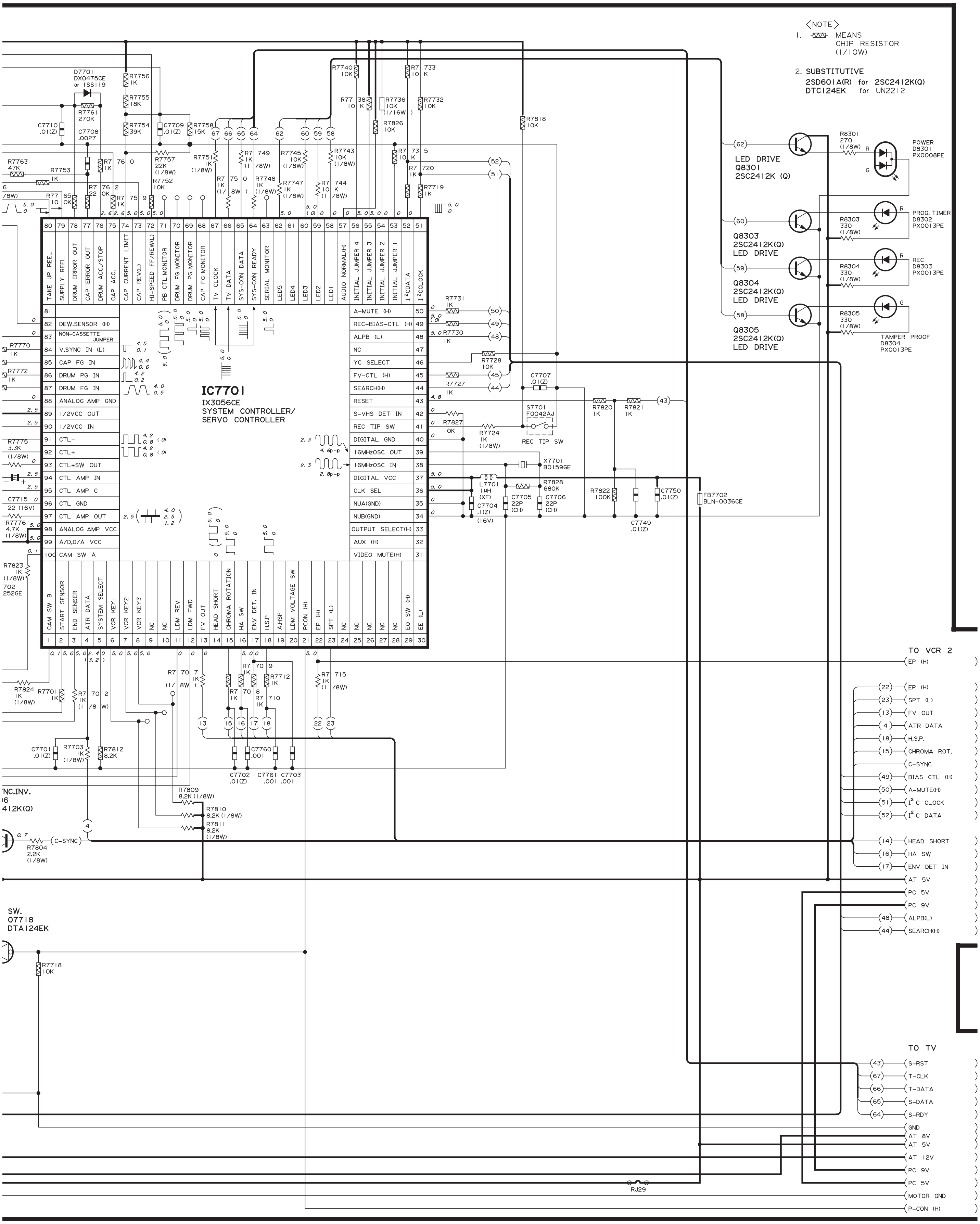




10	11	12	13	14	15	16	17	18	19

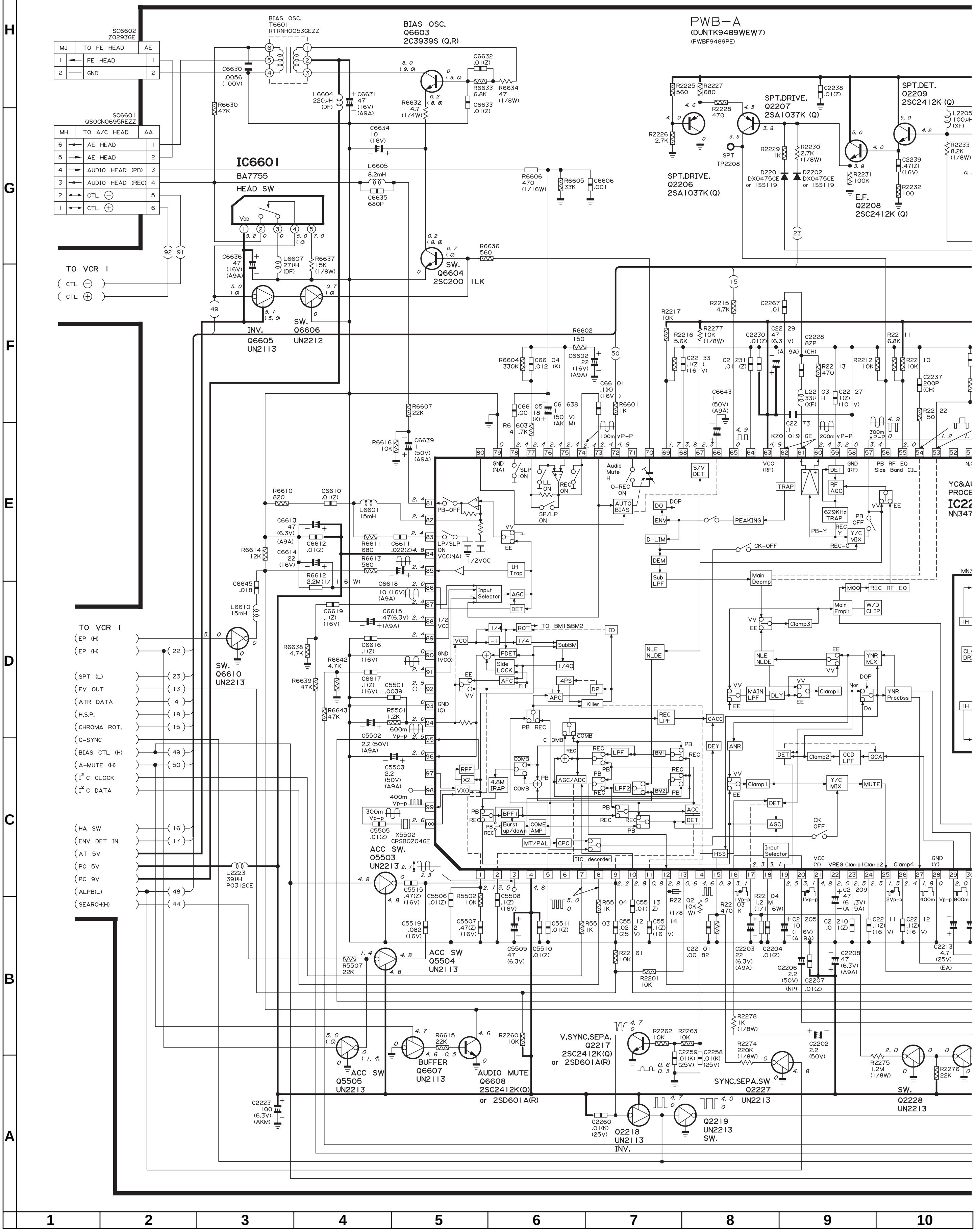
SCHEMATIC DIAGRAM : MAIN Unit (VCR-1 Section)

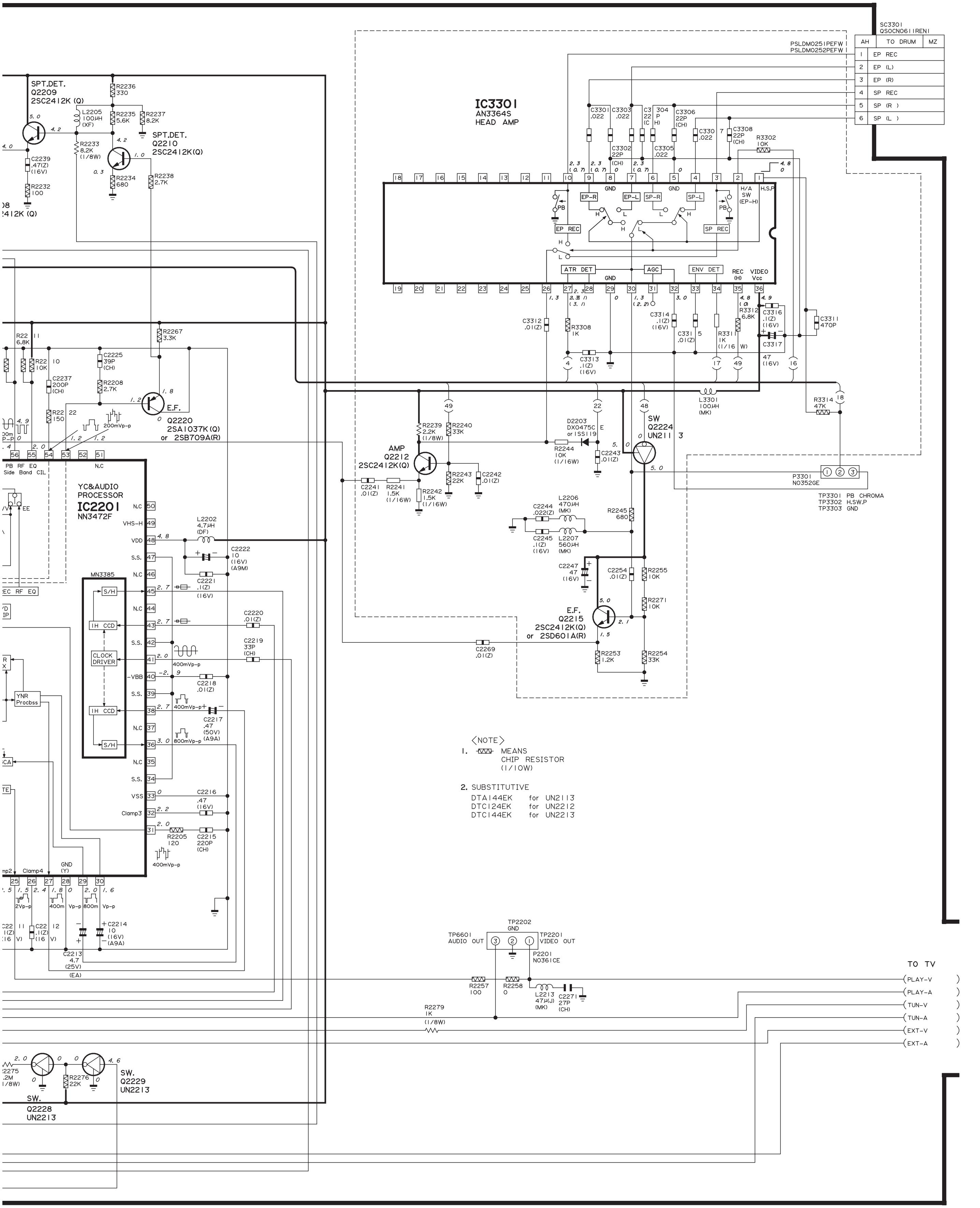




10	11	12	13	14	15	16	17	18	19

SCHEMATIC DIAGRAM : MAIN Unit (VCR-2 Section)





10	11	12	13	14	15	16	17	18	19

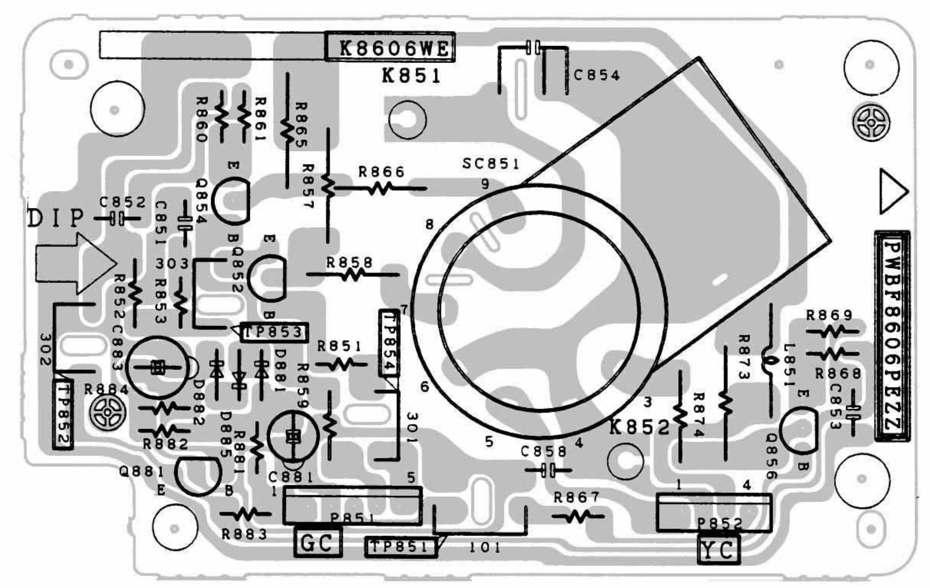
PRINTED WIRING BOARD ASSEMBLIES

H

G

F

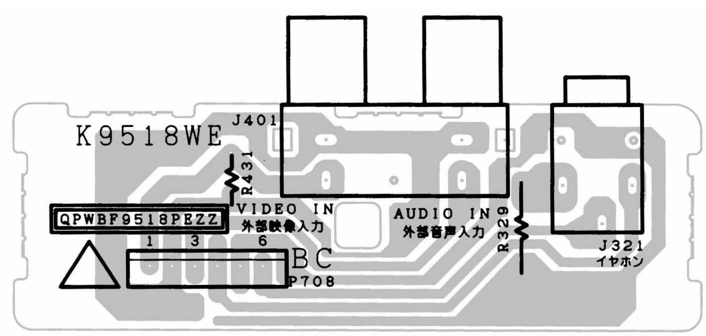
E



PWB-B: CRT Unit (Wiring Side)

D

C

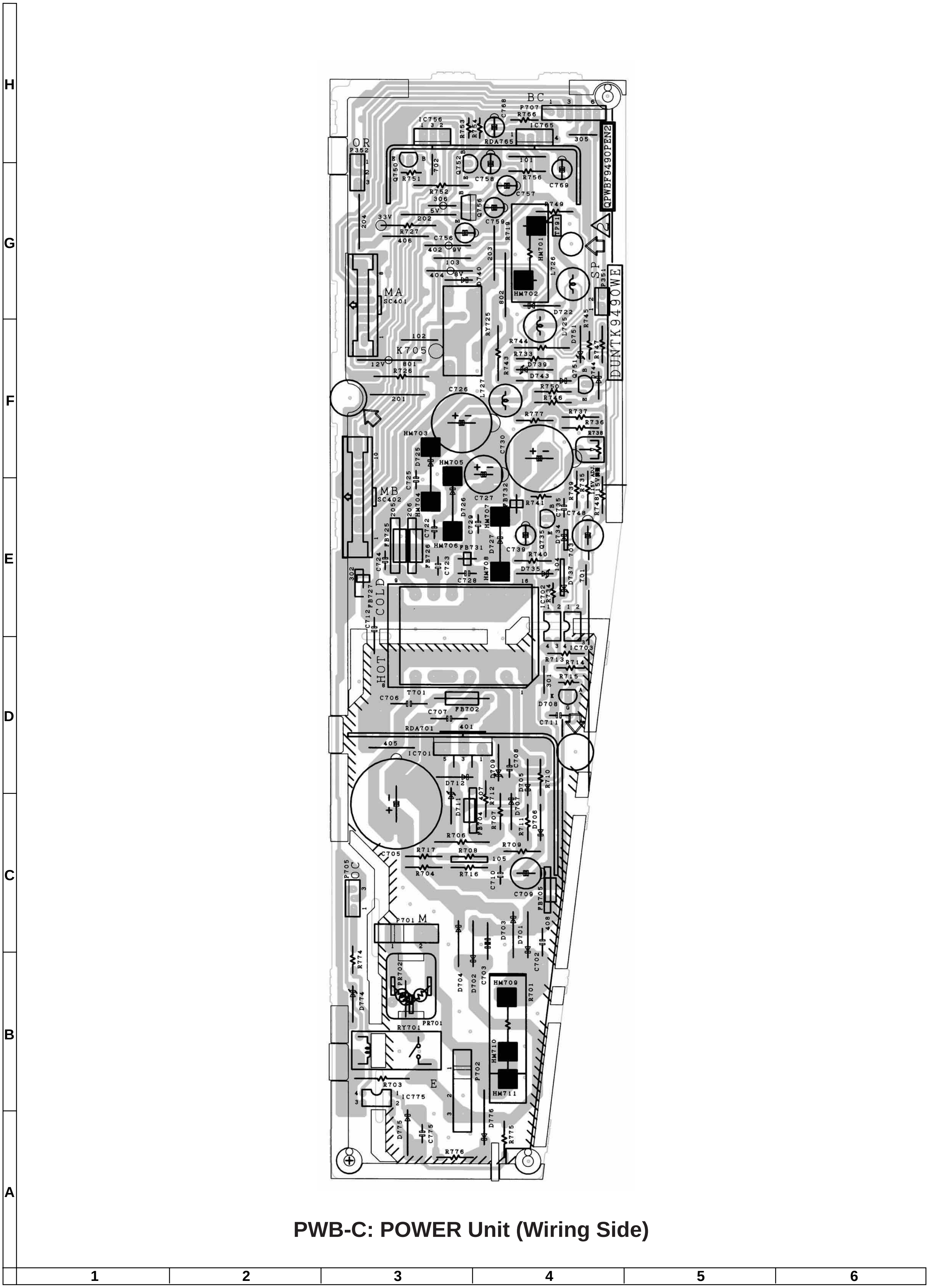


B

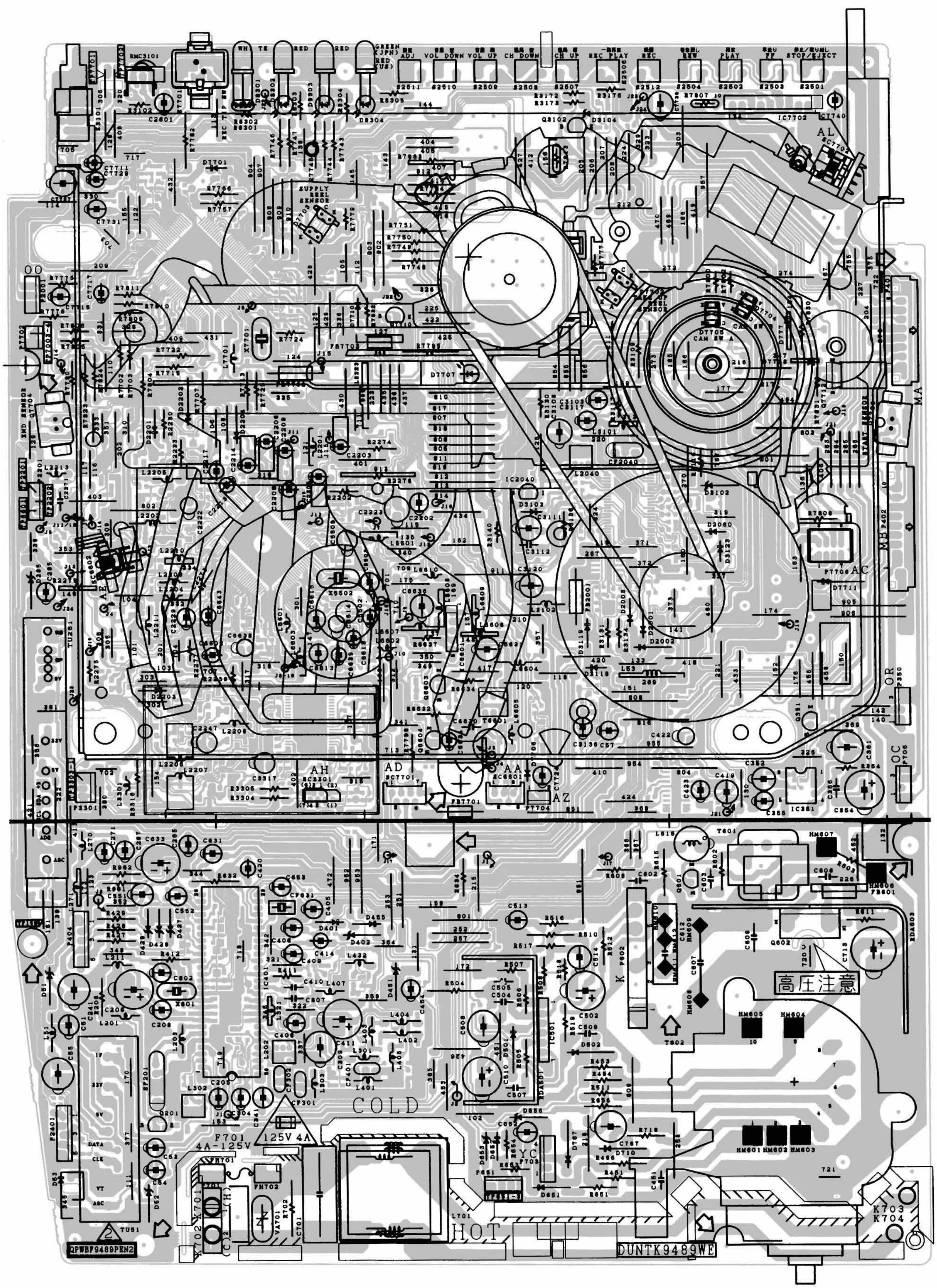
PWB-D: FRONT AV Unit (Wiring Side)

A

1	2	3	4	5	6



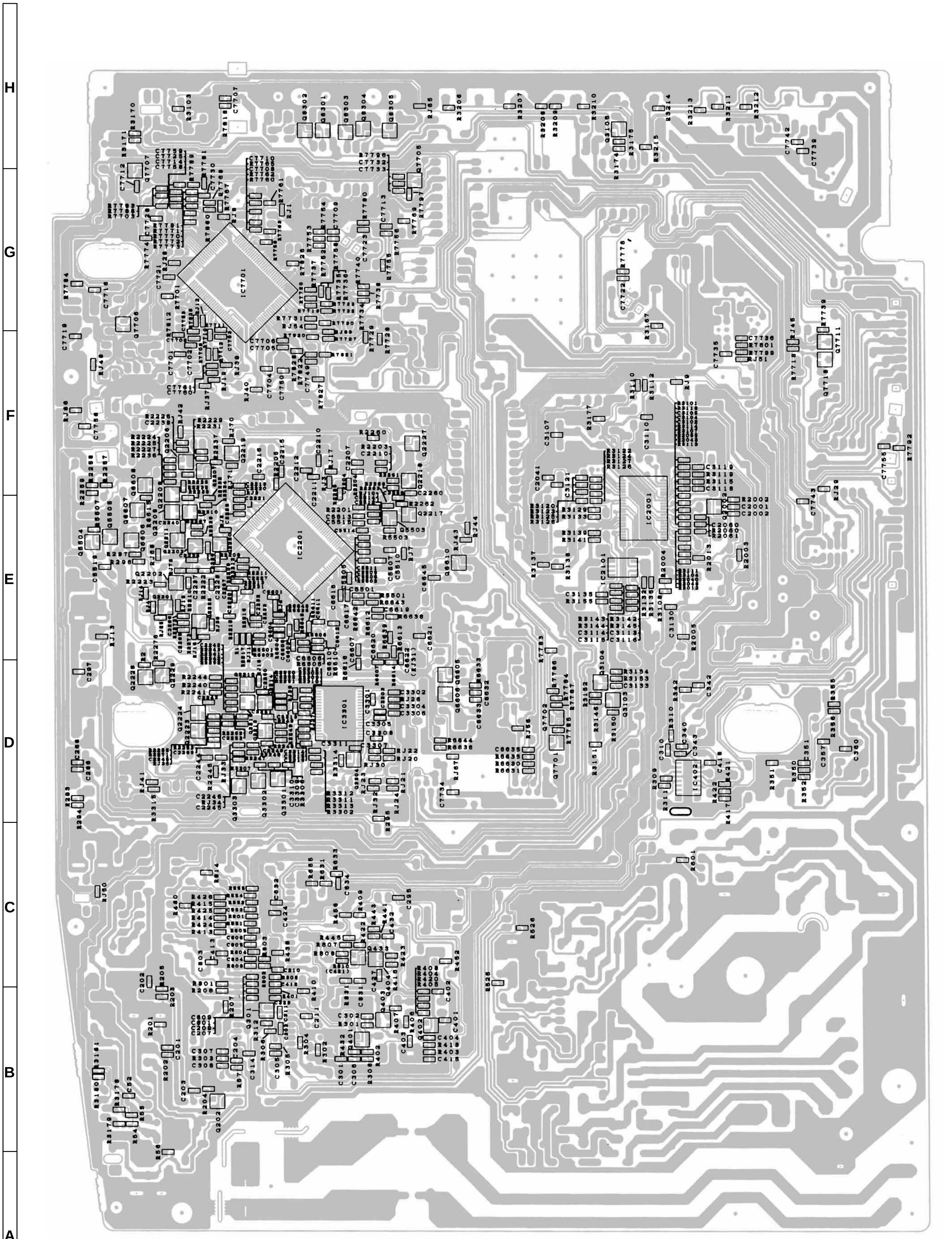
PWB-C: POWER Unit (Wiring Side)



PWB-A: MAIN Unit (Wiring Side)

H G F E D C B A

1 2 3 4 5 6



PWB-A: MAIN Unit (Chip Parts Side)

1	2	3	4	5	6

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual ; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK: SPARE PARTS-DELIVERY SECTION

▲ MARK: X-RAY RELATED PARTS

LISTE DES PIECES

CHANGE DES PIECES

Les pi`eces de rechange qui pr élelesentent ces caract éleristiques sp éleciales de s élecurit éle, sont identifi élees dans ce manuel : les pi`eces élelectriques qui pr élesentent ces particularit éles, sont rep éler élee par la marque ⚠ et sont hachur élees dans les listes de pi`eces et dans les diagrammes sch élematiques.
La substitution d'une pi`ece de rechange par une autre qui ne pr éLesente pas les m éoemes caract éLeristiques de s élecurit éle que la pi`ece recommand élee parl'usine et dans ce manuel de service, peut provoquer une éLelectrocution, un incendie ou toutautre sinistre.

"COMMENT COMMANDER LES PIECES DE RECHANGE"

Pour que votre commande soit rapidement et correctement remplie, veuillez fournir les renseignements suivants.

1. NUMERO DU MODELE
2. NO. DE REF
3. NO. DE PIECE
4. DESCRIPTION

in **CANADA**: Contact SHARP Electronics of Canada Limited
Phone (416) 890-2100

★ MARQUE: SECTION LIVRAISON DES PIECES DERECHANGE

▲ MARQUE: PIECES RELATIVE AUX RAYONS X

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

	Ref. No.	Part No.	★	Description	Code
▲⚠	V101	VB37GDA86X/2E	R	Picture Tube	BZ
▲⚠	DY601	RCiLH0149PEZZ	R	Deflection Yoke	BA
⚠		RCiLG0403PEZZ	R	Degaussing Coil	AK

	CRT	DY			
COMBI-NATION	A34KPU02XX	CILH0149PEN1	CILH0164PEN1		
	37GDA86X	CILH0149PE	CILH0164PEZZ		
	37GDA86X(DT)				
	CPJ370BVBK1S	CILH0140PE	CILH 0160PE	CILH 0140PEN1	CILH 0150PE
	CPJ370BVBK1U				
	A34JFQ90X				
	A34JLL40X	CILH0163PE			
	A34JLL90X	CILH0163PE			

PRINTED WIRING BOARD ASSEMBLYS
(NOT REPLACEMENT ITEM)

PWB-A	DUNTK9489WEW7	–	Main Unit	—
PWB-B	DUNTK8606WEW4	–	CRT Unit	—
PWB-C	DUNTK9490WEW4	–	Power Unit	—
PWB-D	DUNTK9518WEV2	–	Front AV Unit	—

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTK9489WEW7
MAIN Unit

TUNER

NOTE: THE PARTS HERES SHOWN ARE SUPPLIED AS AN ASSEMBLY NOT INDEPENEDENTLY.

	Ref. No.	Part No.	★	Description	Code
⚠	TU51	VTUATEDH9005C	J	Tuner	BE

INTEGRATED CIRCUITS

	Ref. No.	Part No.	★	Description	Code
	IC351	VHiTDA7233/-1	J	TDA7233	AF
⚠	IC401	RH-iX3253CEZZ	J	TA1268AN	AV
	IC402	VHiM52055FP-1	J	M52055FP	AH
⚠	IC501	VHiLA7830//-1	J	LA7830	AH
	IC2001	RH-iX3204CEZZ	J	M37272M8-094FP	AY
	IC2040	VHiPST994C/-1	J	PST994C	AD
	IC2101	VHiBR2401E2-1	J	BR24C01AF	AF
	IC2201	VHiNN3472F/-1	J	NN3472FAS	AX
	IC3301	VHiAN3364S/-1	J	AN3364SB	AL
	IC6601	VHiBA7755//-1	J	BA7755	AD
	IC7701	RH-iX3056CEZZ	J	M37776M5A155GP	AZ
	IC7702	VHiBA6209//1E	J	BA6209-V3	AG

TRANSISTORS

	Ref. No.	Part No.	★	Description	Code
	Q201	VS2SC1906//1E	J	2SC1906	AC
	Q301	VS2SC2412KQ-1	J	2SC2412	AA
	Q351	VS2SC3198-Y-1	J	2SC3198	AA
	Q401	VS2SC2412KQ-1	J	2SC2412	AA
	Q402	VS2SA1037KQ-1	J	2SA1037	AA
	Q403	VS2SC2412KQ-1	J	2SC2412	AA
	Q404	VS2SA1037KQ-1	J	2SA1037	AA
	Q433	VS2SA1037KQ-1	J	2SA1037	AA
	Q601	VS2SC2482//-1	J	2SC2482	AD
⚠	Q602	VS2SD2586//1E	J	2SD2586	AM
	Q2002	VS2SC2412KQ-1	J	2SC2412	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

	Ref. No.	Part No.	★	Description	Code
	Q2206	VS2SA1037KQ-1	J	2SA1037	AA
	Q2207	VS2SA1037KQ-1	J	2SA1037	AA
	Q2208	VS2SC2412KQ-1	J	2SC2412	AA
	Q2209	VS2SC2412KQ-1	J	2SC2412	AA
	Q2210	VS2SC2412KQ-1	J	2SC2412	AA
	Q2212	VS2SC2412KQ-1	J	2SC2412	AA
	Q2215	VS2SC2412KQ-1	J	2SC2412	AA
	Q2217	VS2SC2412KQ-1	J	2SC2412	AA
	Q2218	VSUN2113///-1	J	UN2113	AA
	Q2219	VSUN2213///-1	J	UN2213	AA
	Q2220	VS2SA1037KQ-1	J	2SA1037	AA
	Q2224	VSUN2113///-1	J	UN2113	AA
	Q2227	VSUN2213///-1	J	UN2213	AA
	Q2228	VSUN2213///-1	J	UN2213	AA
	Q2229	VSUN2213///-1	J	UN2213	AA
	Q3102	VS2SA1271-Y-1	J	2SA1271	AB
	Q3105	VS2SA1037KQ-1	J	2SA1037	AA
	Q5503	VSUN2213///-1	J	UN2213	AA
	Q5504	VSUN2113///-1	J	UN2113	AA
	Q5505	VSUN2213///-1	J	UN2213	AA
	Q6603	VS2C3939SQR-1	J	2C3939	AC
	Q6604	VS2SC2001LK-1	J	2SC2001	AA
	Q6605	VSUN2113///-1	J	UN2113	AA
	Q6606	VSUN2212///-1	J	UN2212	AA
	Q6607	VSUN2113///-1	J	UN2113	AA
	Q6608	VS2SC2412KQ-1	J	2SC2412	AA
	Q6610	VSUN2213///-1	J	UN2213	AA
	Q7703	RH-PX0233GEZZ	J	START Sensor	AD
	Q7704	RH-PX0233GEZZ	J	END Sensor	AD
	Q7705	VS2SD1306-E1E	J	2SD1306	AD
	Q7706	VS2SC2412KQ-1	J	2SC2412	AA
	Q7710	VSDTC124ES/-1	J	DTC124	AB
	Q7711	VS2SC2412KQ-1	J	2SC2412	AA
	Q7712	VS2SB1117KU1E	J	2SB1117	AE
	Q7718	VSDTA124EK/-1	J	DTA124	AB
	Q8301	VS2SC2412KQ-1	J	2SC2412	AA
	Q8303	VS2SC2412KQ-1	J	2SC2412	AA
	Q8304	VS2SC2412KQ-1	J	2SC2412	AA
	Q8305	VS2SC2412KQ-1	J	2SC2412	AA

DIODES

	Ref. No.	Part No.	★	Description	Code
	D51	RH-EX0619GEZZ	J	Zener Diode	AA
	D52	RH-EX0207CEZZ	J	Zener Diode	AA
	D401	RH-DX0475CEZZ	J	Diode	AB
	D402	RH-EX0603GEZZ	J	Zener Diode	AA
	D451	RH-EX0616GEZZ	J	Zener Diode	AA
	D455	RH-DX0475CEZZ	J	Diode	AB
	D501	RH-DX0441CEZZ	J	Diode	AC
⚠	D502	RH-DX0131CEZZ	J	Diode	AC
⚠	D651	VHD1SS82///1A	J	Diode	AC
▲⚠	D652	VHD1SS119//-1	J	Diode	AB
▲⚠	D653	RH-EX0628GEZZ	J	Zener Diode	AC
	D656	RH-EX0631GEZZ	J	Zener Diode	AA
⚠	D710	RH-DX0131CEZZ	J	Diode	AC
	D2001	RH-DX0475CEZZ	J	Diode	AB
	D2002	RH-DX0475CEZZ	J	Diode	AB
	D2003	VHD1SS119//-1	J	Diode	AB
	D2060	RH-DX0475CEZZ	J	Diode	AB
	D2201	RH-DX0475CEZZ	J	Diode	AB
	D2202	RH-DX0475CEZZ	J	Diode	AB
	D2203	RH-DX0475CEZZ	J	Diode	AB
	D3103	RH-DX0475CEZZ	J	Diode	AB
	D3104	RH-EX0654GEZZ	J	Zener Diode	AB
	D3123	RH-DX0475CEZZ	J	Diode	AB
	D7701	RH-DX0475CEZZ	J	Diode	AB
	D7702	RH-PX0252GEZZ	J	GP1S563	AF
	D7703	RH-PX0252GEZZ	J	GP1S563	AF
	D7704	RH-PX0253GEZZ	J	GP1S94	AF
	D7705	RH-PX0253GEZZ	J	GP1S94	AF
	D7707	RH-PX0270GEZZ	J	LED	AC
	D7710	RH-DX0475CEZZ	J	Diode	AB
	D7711	VHD1A3-F///-1	J	Diode	AA
	D8301	RH-PX0008PEZZ	R	LED, Red/Green	AE
	D8302	RH-PX0013PEZZ	R	LED, Red	AC
	D8303	RH-PX0013PEZZ	R	LED, Red	AC
	D8304	RH-PX0013PEZZ	R	LED, Green	AC
⚠	VA701	RH-VX0026CEZZ	J	Varistor	AC

PACKAGED CIRCUITS

	Ref. No.	Part No.	★	Description	Code
	X801	RCRSB0205CEZZ	J	Crystal	AF
	X5502	RCRSB0204GEZZ	J	Crystal	AG
	X7701	RCRSB0159GEZZ	J	Crystal	AF

COILS

	Ref. No.	Part No.	★	Description	Code
	L51	VP-DF220K0000	J	Peaking 22µH	AB
	L53	RCiLP0312CEZZ	J	Coil	AE
	L201	VP-XF1R2K0000	J	Peaking 1.2µH	AB
	L202	RCiLi0618CEZZ	J	IF Coil	AE
	L203	VP-XFR56K0000	J	Peaking 0.56µH	AB
	L211	VP-XF560K0000	J	Peaking 56µH	AB
	L301	VP-XF8R2K0000	J	Peaking 8.2µH	AB
	L302	RCiLi0617CEZZ	J	IF Coil	AD
	L303	VP-XF220K0000	J	Peaking 22µH	AB
	L321	VP-XF560K0000	J	Peaking 56µH	AB
	L401	VP-XF120K0000	J	Peaking 12µH	AB
	L402	VP-XF2R7K0000	J	Peaking 2.7µH	AB
	L403	VP-XF6R8K0000	J	Peaking 6.8µH	AB
	L404	VP-XF8R2K0000	J	Peaking 8.2µH	AB
	L615	RCiLP0270CEZZ	J	Coil	AE
⚠	L701	RCiLF0037PEZZ	R	Coil	AK
	L2040	RCiLB0015PEZZ	R	Oscillation Coil	AF
	L2202	VP-DF4R7K0000	J	Peaking 4.7µH	AB
	L2203	VP-XF330K0000	J	Peaking 33µH	AB
	L2205	VP-XF101K0000	J	Peaking 100µH	AB
	L2206	VP-MK471K0000	J	Peaking 470µH	AB
	L2207	VP-MK561K0000	J	Peaking 560µH	AB
	L2213	VP-MK470J0000	J	Peaking 47µH	AB
	L2223	RCiLP0312CEZZ	J	Coil	AE
	L3101	VP-XF100K0000	J	Peaking 10µH	AB
	L3102	VP-XF100K0000	J	Peaking 10µH	AB
	L3301	VP-MK101K0000	J	Peaking 100µH	AB

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

	Ref. No.	Part No.	★	Description	Code
	L6601	VPADK153J0000	J	Peaking	AC
	L6604	VP-DF221K0000	J	Peaking 220µH	AB
	L6605	VPADK822J0000	J	Peaking 82mH	AC
	L6607	VP-DF270K0000	J	Peaking 27µH	AB
	L6610	VPADK153J0000	J	Peaking	AC
	L7701	VP-XF1R0K0000	J	Peaking 1µH	AB
	SF201	RFiLC0405CEZZ	J	S.A.W Filter	AH
	CF301	RFiLC0403CEZZ	J	Ceramic Filter	AE
	CF302	RFiLC0404CEZZ	J	Ceramic Filter	AF
	CF401	RFiLC0013CEZZ	J	Ceramic Filter	AE
	CF631	RFiLA0034CEZZ	J	Ceramic Filter	AD
	CF2040	RFiLA0099CEZZ	J	Ceramic Filter	

TRANSFORMERS

	Ref. No.	Part No.	★	Description	Code
	T601	RTRNZ0144PEZZ	R	Transformer	AE
▲⚠	T602	RTRNF0155PEZZ	R	H-Volt Transformer	BC
	T6601	RTRNH0053GEZZ	J	Osc. Transformer	AE

CAPACITORS

(EL. : Electrolytic, M-Poly. : Metalized Polypro Film)

	Ref. No.	Part No.	★	Description			Code
	C51	VCEA0A1CW476M	J	47	16V	EL.	AB
	C52	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
	C53	VCEA0A1HW105M	J	1.0	50V	EL.	AB
	C54	VCEA0A1HW225M	J	2.2	50V	EL.	AB
	C55	VCEA0A1CW477M	J	470	16V	EL.	AC
	C57	VCEAKA0JW107M	J	100	6.3V	EL.	AB
	C201	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C202	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C203	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C204	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
	C205	VCEA0A1HW474M	J	0.47	50V	EL.	AB
	C206	VCEA0A1CW477M	J	470	16V	EL.	AC
	C207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
	C208	VCEA0A1HW474M	J	0.47	50V	EL.	AB
	C209	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
	C210	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
	C211	VCCCCY1HH270J	J	27p	50V	Ceramic	AA
	C241	VCEA0A1CW477M	J	470	16V	EL.	AC
	C301	VCCCCY1HH470J	J	47p	50V	Ceramic	AA
	C303	VCKYCY1HB682K	J	6800p	50V	Ceramic	AA
	C305	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
	C306	VCCCCY1HH470J	J	47p	50V	Ceramic	AA
	C307	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
	C308	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C309	VCEA0A1CW107M	J	100	16V	EL.	AC
	C310	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
	C314	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
	C329	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C340	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
	C341	VCE9EA1HW105M	J	1.0	50V	EL.(N.P)	AC
	C343	VCCCCY1HH151J	J	150p	50V	Ceramic	AA
	C351	VCKYCY1HB272K	J	2700p	50V	Ceramic	AA
	C352	VCEAEA1CW107M	J	100	16V	EL.	AC
	C354	VCEA0A1CW477M	J	470	16V	EL.	AC
	C355	VCEA0A1CW226M	J	22	16V	EL.	AB
	C356	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
	C357	VCKYCY1CF474Z	J	0.47	16V	Ceramic	AB
	C360	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
	C361	VCEA0A1CW337M	J	330	16V	EL.	AC
	C401	VCCCCY1HH271J	J	270p	50V	Ceramic	AA
	C402	VCCCCY1HH470J	J	47p	50V	Ceramic	AA
	C403	VCCCCY1HH100D	J	10p	50V	Ceramic	AA
	C405	VCEA0A1HW105M	J	1.0	50V	EL.	AB
	C406	VCEA0A1HW474M	J	0.47	50V	EL.	AB
	C408	VCEA0A1CW106M	J	10	16V	EL.	AB
	C409	VCEA0A1HW105M	J	1.0	50V	EL.	AB
	C410	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
	C411	VCEA0A1CW108M	J	1000	16V	EL.	AD
	C412	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
	C413	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
	C414	VCE9EA1HW105M	J	1.0	50V	EL.(N.P)	AC
	C418	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
	C419	VCEA0A1CW476M	J	47	16V	EL.	AB
	C420	VCE9EA1HW105M	J	1.0	50V	EL.(N.P)	AC
	C422	VCEAKM1CW106M	J	10	16V	EL.	AB
	C423	VCEA0A1CW106M	J	10	16V	EL.	AB
	C451	VCQYTA2AA563K	J	0.056	100V	Mylar	AB
	C454	VCEA0A1CW106M	J	10	16V	EL.	AB
	C502	VCEA0A1VW477M	J	470	35V	EL.	AB
	C504	VCKYPA2HB561K	J	560p	500V	Ceramic	AA
	C505	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
	C507	VCQYTA1HM152K	J	1500p	50V	Mylar	AB
	C508	VCEA0A1HW107M	J	100	50V	EL.	AB
	C509	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
	C510	VCEA0A1VW477M	J	470	35V	EL.	AB
	C513	VCEA0A1HW225M	J	2.2	50V	EL.	AB
	C514	VCEACA1HC335J	J	3.3	50V	EL.	AC
	C551	VCEACA1HC225J	J	2.2	50V	EL.	AC
	C552	VCEA0A1HW225M	J	2.2	50V	EL.	AB
	C553	VCCCCY1HH391J	J	390p	50V	Ceramic	AA
	C602	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
	C603	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
	C606	VCKYPA1HB472K	J	4700p	50V	Ceramic	AA
▲⚠	C607	VCFPPD3CA682H	J	6800p	1.6kV	M-Poly.	AE
	C612	VCFPVC2DB474J	J	0.47	200V	M-Poly.	
	C631	VCEA0A1HW475M	J	4.7	50V	EL.	AB
	C632	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C633	VCEA0A1CW477M	J	470	16V	EL.	AC
▲⚠	C652	VCEA0A1HW106M	J	10	50V	EL.	AB
	C653	VCEA0A1CW106M	J	10	16V	EL.	AB
⚠	C701	RC-FZ021SCEZZ	J	0.22	AC250V		AE
⚠	C713	RC-EZ0587CEZZ	J	33	200V	EL.	AF
	C767	VCEA0A2AW226M	J	22	100V	EL.	AC
	C801	VCKYCY1EB223K	J	0.022	25V	Ceramic	AA
	C802	VCEA0A1HW474M	J	0.47	50V	EL.	AB
	C803	VCCCCY1HH120J	J	12p	50V	Ceramic	AA
	C804	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C805	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C806	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
	C807	VCCCPA1HH270J	J	27p	50V	Ceramic	AA
	C2002	VCKYCY1EB183K	J	0.018	25V	Ceramic	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

Ref. No.	Part No.	★	Description			Code
C2041	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C2060	VCKYCY1EB223K	J	0.022	25V	Ceramic	AA
C2201	VCKYCY1EB822K	J	8200p	25V	Ceramic	AA
C2202	VCEAKA1HW225M	J	2.2	50V	EL.	AB
C2203	VCEA9A0JW226M	J	22	6.3V	EL.	AB
C2204	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2205	VCEA9A1CW106M	J	10	16V	EL.	AB
C2206	VCE9EA1HW225M	J	2.2	50V	EL.(N.P)	AB
C2207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2208	VCEA9A0JW476M	J	47	6.3V	EL.	AB
C2209	VCEA9A0JW476M	J	47	6.3V	EL.	AB
C2210	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2211	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C2212	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C2213	VCEAEA1EW475M	J	4.7	25V	EL.	AB
C2214	VCEA9A1CW106M	J	10	16V	EL.	AB
C2215	VCCCCY1HH221J	J	220p	50V	Ceramic	AA
C2216	VCKYCY1CF474Z	J	0.47	16V	Ceramic	AB
C2217	VCEA9A1HW474M	J	0.47	50V	EL.	AB
C2218	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2219	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C2220	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2221	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C2222	VCEA9M1CW106M	J	10	16V	EL.	AB
C2223	VCEAKM0JW107M	J	100	6.3V	EL.	AB
C2225	VCCCCY1HH390J	J	39p	50V	Ceramic	AA
C2227	VCKYCY1AF105Z	J	1.0	10V	Ceramic	AC
C2228	VCCCCY1HH820J	J	82p	50V	Ceramic	AA
C2229	VCEA9A0JW476M	J	47	6.3V	EL.	AB
C2230	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2231	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2233	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C2237	VCCCCY1HH201J	J	200p	50V	Ceramic	AD
C2238	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2239	VCKYCY1CF474Z	J	0.47	16V	Ceramic	AB
C2241	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2242	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2243	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2244	VCKYCY1HF223Z	J	0.022	50V	Ceramic	AB
C2245	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C2247	VCEAKM1CW476M	J	47	16V	EL.	AB
C2254	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2258	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
C2259	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
C2260	VCKYCY1EB103K	J	0.01	25V	Ceramic	AA
C2267	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2269	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C2271	VCCCPA1HH270J	J	27p	50V	Ceramic	AA
C2273	RC-KZ0019GEZZ	J	0.1		Ceramic	AA
C2601	VCEA0A1AW476M	J	47	10V	EL.	AB
C3102	VCCCCY1HH221J	J	220p	50V	Ceramic	AA
C3103	VCEAKA1HW105M	J	1.0	50V	EL.	AB
C3104	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C3105	VCCCCY1HH221J	J	220p	50V	Ceramic	AA
C3107	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C3108	VCEAKA0JW107M	J	100	6.3V	EL.	AB
C3109	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C3110	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C3111	VCEA9A0JW107M	J	100	6.3V	EL.	AB
C3112	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C3113	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C3114	VCCCCY1HH150J	J	15p	50V	Ceramic	AA
C3115	VCCCCY1HH150J	J	15p	50V	Ceramic	AA
C3116	VCCCCY1HH150J	J	15p	50V	Ceramic	AA
C3117	VCEAKA1CW106M	J	10	16V	EL.	AB
C3130	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C3301	VCKYCY1HF223Z	J	0.022	50V	Ceramic	AB
C3302	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C3303	VCKYCY1HF223Z	J	0.022	50V	Ceramic	AB
C3304	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C3305	VCKYCY1EB223K	J	0.022	25V	Ceramic	AA
C3306	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C3307	VCKYCY1EB223K	J	0.022	25V	Ceramic	AA
C3308	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C3311	VCKYCY1HB471K	J	470p	50V	Ceramic	AA
C3312	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C3313	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C3314	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C3315	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C3316	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C3317	VCEAKM1CW476M	J	47	16V	EL.	AB
C5501	VCKYCY1HB392K	J	3900p	50V	Ceramic	AA
C5502	VCEA9A1HW225M	J	2.2	50V	EL.	AB
C5503	VCEA9A1HW225M	J	2.2	50V	EL.	AB
C5505	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C5506	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C5507	VCKYCY1CF474Z	J	0.47	16V	Ceramic	AB
C5508	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C5509	VCEA9M0JW476M	J	47	6.3V	EL.	AB
C5510	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C5511	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C5512	VCKYCY1EB223K	J	0.022	25V	Ceramic	AA
C5513	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C5514	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C5515	VCKYCY1CF474Z	J	0.47	16V	Ceramic	AB
C5519	VCKYCY1CB823K	J	0.082	16V	Ceramic	AH
C6601	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C6602	VCEA9A1CW226M	J	22	16V	EL.	AB
C6604	VCKYCY1EB123K	J	0.012	25V	Ceramic	AA
C6605	VCKYCY1HB182K	J	1800p	50V	Ceramic	AA
C6606	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C6610	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C6611	VCKYCY1HF223Z	J	0.022	50V	Ceramic	AB
C6612	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C6613	VCEA9A0JW476M	J	47	6.3V	EL.	AB
C6614	VCEAKM1CW226M	J	22	16V	EL.	AB
C6615	VCEA9A0JW476M	J	47	6.3V	EL.	AB
C6616	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C6617	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C6618	VCEA9A1CW106M	J	10	16V	EL.	AB
C6619	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

Ref. No.	Part No.	★	Description			Code
C6630	VCQPSA2AA562J	J	5600p	100V		AC
C6631	VCEA9A1CW476M	J	47	16V	EL.	AB
C6632	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C6633	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C6634	VCEAKA1CW106M	J	10	16V	EL.	AB
C6635	VCKYCY1HB681K	J	680p	50V	Ceramic	AA
C6636	VCEA0A1CW476M	J	47	16V	EL.	AB
C6638	VCEA9M1HW105M	J	1.0	50V	EL.	AB
C6639	VCEA9A1HW105M	J	1.0	50V	EL.	AB
C6643	VCEA9A1HW105M	J	1.0	50V	EL.	AB
C6645	VCKYCY1EB183K	J	0.018	25V	Ceramic	AA
C7701	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7702	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7703	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C7704	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7705	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C7706	VCCCCY1HH220J	J	22p	50V	Ceramic	AA
C7707	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7708	VCKYCY1HB272K	J	2700p	50V	Ceramic	AA
C7709	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7710	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7713	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C7714	VCKYCY1EB153K	J	0.015	25V	Ceramic	AA
C7715	VCEAKA1CW226M	J	22	16V	EL.	AB
C7716	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C7717	VCEA9A1CW106M	J	10	16V	EL.	AB
C7719	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7721	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7722	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7723	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7725	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C7728	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7729	VCEA9A1CW106M	J	10	16V	EL.	AB
C7730	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7731	VCEA9A1CW226M	J	22	16V	EL.	AB
C7732	VCKYCY1HB682K	J	6800p	50V	Ceramic	AA
C7733	VCKYCY1HB221K	J	220p	50V	Ceramic	AA
C7734	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7735	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7736	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7737	VCEAKA0JW107M	J	100	6.3V	EL.	AB
C7738	VCEA0A1CW476M	J	47	16V	EL.	AB
C7739	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7740	VCE9EA1HW105M	J	1.0	50V	EL.(N.P)	AC
C7742	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7743	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C7749	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7750	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7755	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7756	VCKYCY1CF104Z	J	0.1	16V	Ceramic	AA
C7758	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7759	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C7760	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C7761	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA

RESISTORS

(M.Ox. : Metal Oxide)

Ref. No.	Part No.	★	Description			Code
RJ1	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ2	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ3	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ7	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ8	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ9	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ10	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ11	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ12	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ13	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ14	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ15	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ16	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ17	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ19	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ20	VRS-CY1JF000J	J	0	1/16W	M.Ox.	AA
RJ23	VRS-CY1JF000J	J	0	1/16W	M.Ox.	AA
RJ24	VRS-CY1JF000J	J	0	1/16W	M.Ox.	AA
RJ26	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ27	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ28	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ29	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ30	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ31	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ32	VRS-CY1JF000J	J	0	1/16W	M.Ox.	AA
RJ33	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ34	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ36	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ37	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ38	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ39	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ40	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ41	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ42	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ43	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ44	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ45	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ51	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ54	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ56	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ65	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ69	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ70	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ71	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
RJ72	VRS-CY1JF000J	J	0	1/16W	M.Ox.	AA
R54	VRN-MD2AL101J	J	100	0.1W	Metal Film	AA
R55	VRN-MD2AL101J	J	100	0.1W	Metal Film	AA
R56	VRN-MD2AL823J	J	82k	0.1W	Metal Film	AA
R57	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R201	VRN-MD2AL151J	J	150	0.1W	Metal Film	AA
R202	VRN-MD2AL122J	J	1.2k	0.1W	Metal Film	AA
R203	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R204	VRN-MD2AL270J	J	27	0.1W	Metal Film	AA
R205	VRN-MD2AL331J	J	330	0.1W	Metal Film	AA
R206	VRD-RA2EE121J	J	120	1/4W	Carbon	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

	Ref. No.	Part No.	★	Description	Code
	R207	VRN-MD2AL391J	J	390 0.1W Metal Film	AA
	R208	VRN-MD2AL331J	J	330 0.1W Metal Film	AA
	R296	VRN-MD2AL000J	J	0 0.1W Metal Film	AA
	R301	VRN-MD2AL562J	J	5.6k 0.1W Metal Film	AA
	R302	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R303	VRN-MD2AL123J	J	12k 0.1W Metal Film	AA
	R305	VRN-MD2AL823J	J	82k 0.1W Metal Film	AA
	R306	VRN-MD2AL222J	J	2.2k 0.1W Metal Film	AA
	R308	VRN-MD2AL271J	J	270 0.1W Metal Film	AA
	R309	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R310	VRN-MD2AL273J	J	27k 0.1W Metal Film	AA
	R311	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R342	VRN-MD2AL273J	J	27k 0.1W Metal Film	AA
	R350	VRN-MD2AL393J	J	39k 0.1W Metal Film	AA
	R351	VRN-MD2AL153J	J	15k 0.1W Metal Film	AA
	R352	VRN-MD2AL152J	J	1.5k 0.1W Metal Film	AA
	R354	VRD-RA2BE4R7J	J	4.7 1/8W Carbon	AA
	R355	VRN-MD2AL473J	J	47k 0.1W Metal Film	AA
	R356	VRN-MD2AL473J	J	47k 0.1W Metal Film	AA
	R401	VRN-MD2AL682J	J	6.8k 0.1W Metal Film	AA
	R402	VRN-MD2AL331J	J	330 0.1W Metal Film	AA
	R403	VRN-MD2AL331J	J	330 0.1W Metal Film	AA
	R404	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R405	VRN-MD2AL330J	J	33 0.1W Metal Film	AB
	R406	VRN-MD2AL680J	J	68 0.1W Metal Film	AA
	R407	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R408	VRN-MD2AL471J	J	470 0.1W Metal Film	AA
	R409	VRN-MD2AL123J	J	12k 0.1W Metal Film	AA
	R410	VRN-MD2AL104J	J	100k 0.1W Metal Film	AA
	R411	VRD-RA2BE104J	J	100k 1/8W Carbon	AA
	R412	VRD-RA2EE561J	J	560 1/4W Carbon	AA
	R413	VRN-MD2AL470J	J	47 0.1W Metal Film	AA
	R414	VRN-MD2AL470J	J	47 0.1W Metal Film	AA
	R415	VRN-MD2AL470J	J	47 0.1W Metal Film	AA
	R416	VRN-MD2AL222J	J	2.2k 0.1W Metal Film	AA
	R417	VRN-MD2AL122J	J	1.2k 0.1W Metal Film	AA
	R418	VRN-MD2AL000J	J	0 0.1W Metal Film	AA
	R421	VRN-MD2AL101J	J	100 0.1W Metal Film	AA
	R422	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R423	VRN-MD2AL152J	J	1.5k 0.1W Metal Film	AA
	R424	VRN-MD2AL182J	J	1.8k 0.1W Metal Film	AA
	R425	VRN-MD2AL182J	J	1.8k 0.1W Metal Film	AA
	R426	VRN-MD2AL182J	J	1.8k 0.1W Metal Film	AA
	R427	VRD-RA2EE101J	J	100 1/4W Carbon	AA
	R428	VRD-RA2EE101J	J	100 1/4W Carbon	AA
	R429	VRD-RA2EE101J	J	100 1/4W Carbon	AA
	R438	VRN-MD2AL822J	J	8.2k 0.1W Metal Film	AA
	R441	VRN-MD2AL122J	J	1.2k 0.1W Metal Film	AA
	R442	VRN-MD2AL000J	J	0 0.1W Metal Film	AA
	R443	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
⚠	R451	VRS-SV2HC103J	J	10k 1/2W M.Ox.	AA
	R452	VRN-MD2AL000J	J	0 0.1W Metal Film	AA
	R453	VRD-RA2EE474J	J	470k 1/4W Carbon	AA
	R454	VRD-RA2EE184J	J	180k 1/4W Carbon	AA
	R456	VRN-MD2AL273J	J	27k 0.1W Metal Film	AA
	R466	VRN-VV3AB1R5J	J	1.5 1W Metal Film	AA
	R501	VRN-MD2AL101J	J	100 0.1W Metal Film	AA
	R504	VRD-RA2BE471J	J	470 1/8W Carbon	AA
	R505	VRD-RA2BE101J	J	100 1/8W Carbon	AB
	R506	VRD-RA2BE683G	J	68k 1/8W Carbon	AA
	R507	VRD-RA2BE104G	J	100k 1/8W Carbon	AA
	R508	VRD-RA2BE683J	J	68k 1/8W Carbon	AA
	R510	VRN-VV3AB1R0J	J	1.0 1W Metal Film	AA
⚠	R511	VRN-GA2EB1R0J	J	1.0 1/4W Metal Film	AA
	R512	VRD-RM2HD561J	J	560 1/2W Carbon	AA
	R516	VRD-RA2BE153G	J	15k 1/8W Carbon	AA
	R517	VRD-RA2BE223G	J	22k 1/8W Carbon	AA
	R518	VRD-RA2BE154J	J	150k 1/8W Carbon	AA
	R519	VRD-RM2HD681J	J	680 1/2W Carbon	AA
	R525	VRN-MD2AL183J	J	18k 0.1W Metal Film	AA
	R551	VRN-MD2AL472J	J	4.7k 0.1W Metal Film	AA
	R552	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R554	VRN-MD2AL393J	J	39k 0.1W Metal Film	AA
	R601	VRN-MD2AL331J	J	330 0.1W Metal Film	AA
	R602	VRD-RM2HD392J	J	3.9k 1/2W Carbon	AA
⚠	R603	VRS-KT3LB222J	J	2.2k 3.0W M.Ox.	AC
	R608	VRD-RA2BE331J	J	330 1/8W Carbon	AA
	R611	VRD-RM2HD220J	J	22 1/2W Carbon	AA
	R615	VRS-VV3AB271J	J	270 1W M.Ox.	AA
	R631	VRN-MD2AL391J	J	390 0.1W Metal Film	AA
	R632	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA
	R633	VRN-MD2AL472J	J	4.7k 0.1W Metal Film	AA
▲⚠	R651	VRD-RM2HD680J	J	68 1/2W Carbon	AA
▲⚠	R653	VRD-RA2BE822G	J	8.2k 1/8W Carbon	AA
▲⚠	R654	VRD-RA2BE103G	J	10k 1/8W Carbon	AA
▲⚠	R655	VRN-MD2AL104J	J	100k 0.1W Metal Film	AA
▲⚠	R656	VRD-RM2HD123J	J	12k 1/2W Carbon	AA
⚠	R702	VRC-UA2HG395K	J	3.9M 1/2W Solid	AA
⚠	R718	VRN-GA2EB1R0J	J	1.0 1/4W Metal Film	AA
	R801	VRN-MD2AL103J	J	10k 0.1W Metal Film	AA
	R802	VRN-MD2AL392J	J	3.9k 0.1W Metal Film	AA
	R803	VRN-MD2AL272J	J	2.7k 0.1W Metal Film	AA
	R804	VRN-MD2AL272J	J	2.7k 0.1W Metal Film	AA
	R805	VRN-MD2AL272J	J	2.7k 0.1W Metal Film	AA
	R806	VRN-MD2AL333J	J	33k 0.1W Metal Film	AA
	R807	VRN-MD2AL000J	J	0 0.1W Metal Film	AA
	R809	VRN-MD2AL101J	J	100 0.1W Metal Film	AA
	R810	VRS-CY1JF000J	J	0 1/16W M.Ox.	AA
	R961	VRD-RA2BE101J	J	100 1/8W Carbon	AB
	R962	VRD-RA2BE101J	J	100 1/8W Carbon	AB
	R2002	VRN-MD2AL332J	J	3.3k 0.1W Metal Film	AA
	R2003	VRN-MD2AL103J	J	10k 0.1W Metal Film	AA
	R2004	VRN-MD2AL392J	J	3.9k 0.1W Metal Film	AA
	R2005	VRN-MD2AL562J	J	5.6k 0.1W Metal Film	AA
	R2012	VRN-MD2AL472J	J	4.7k 0.1W Metal Film	AA
	R2013	VRN-MD2AL472J	J	4.7k 0.1W Metal Film	AA
	R2028	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R2040	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R2043	VRN-MD2AL102J	J	1.0k 0.1W Metal Film	AA
	R2055	VRN-MD2AL472J	J	4.7k 0.1W Metal Film	AA
	R2060	VRN-MD2AL564J	J	560k 0.1W Metal Film	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

Ref. No.	Part No.	★	Description			Code
R2061	VRN-MD2AL152J	J	1.5k	0.1W	Metal Film	AA
R2201	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2202	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R2203	VRN-MD2AL474J	J	470k	0.1W	Metal Film	AA
R2204	VRS-CY1JF125J	J	1.2M	1/16W	M.Ox.	AA
R2205	VRN-MD2AL121J	J	120	0.1W	Metal Film	AA
R2208	VRN-MD2AL272J	J	2.7k	0.1W	Metal Film	AA
R2210	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2211	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R2212	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2213	VRN-MD2AL471J	J	470	0.1W	Metal Film	AA
R2215	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R2216	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R2217	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2222	VRN-MD2AL151J	J	150	0.1W	Metal Film	AA
R2225	VRN-MD2AL561J	J	560	0.1W	Metal Film	AA
R2226	VRN-MD2AL272J	J	2.7k	0.1W	Metal Film	AA
R2227	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R2228	VRN-MD2AL471J	J	470	0.1W	Metal Film	AA
R2229	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R2230	VRD-RA2BE272J	J	2.7k	1/8W	Carbon	AA
R2231	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R2232	VRN-MD2AL101J	J	100	0.1W	Metal Film	AA
R2233	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R2234	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R2235	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R2236	VRN-MD2AL331J	J	330	0.1W	Metal Film	AA
R2237	VRN-MD2AL822J	J	8.2k	0.1W	Metal Film	AA
R2238	VRN-MD2AL272J	J	2.7k	0.1W	Metal Film	AA
R2239	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R2240	VRN-MD2AL333J	J	33k	0.1W	Metal Film	AA
R2241	VRS-CY1JF152J	J	1.5k	1/16W	M.Ox.	AA
R2242	VRS-CY1JF152J	J	1.5k	1/16W	M.Ox.	AA
R2243	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R2244	VRS-CY1JF103J	J	10k	1/16W	M.Ox.	AA
R2245	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R2253	VRN-MD2AL122J	J	1.2k	0.1W	Metal Film	AA
R2254	VRN-MD2AL333J	J	33k	0.1W	Metal Film	AA
R2255	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2257	VRN-MD2AL101J	J	100	0.1W	Metal Film	AA
R2258	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
R2260	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2261	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2262	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2263	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2267	VRN-MD2AL332J	J	3.3k	0.1W	Metal Film	AA
R2271	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R2274	VRD-RA2BE224J	J	220k	1/8W	Carbon	AA
R2275	VRD-RA2BE125J	J	1.2M	1/8W	Carbon	AA
R2276	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R2277	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R2278	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2279	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R3102	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R3104	VRN-MD2AL561J	J	560	0.1W	Metal Film	AA
R3107	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3108	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3109	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R3110	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3111	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3112	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3113	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3117	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R3118	VRN-MD2AL122J	J	1.2k	0.1W	Metal Film	AA
R3119	VRS-CY1JF105J	J	1.0M	1/16W	M.Ox.	AA
R3120	VRN-MD2AL222J	J	2.2k	0.1W	Metal Film	AA
R3121	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3122	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3123	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3124	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3125	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3127	VRN-MD2AL334J	J	330k	0.1W	Metal Film	AC
R3128	VRN-MD2AL564J	J	560k	0.1W	Metal Film	AA
R3129	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3130	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R3131	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R3132	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3133	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3134	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R3135	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3136	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R3137	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3138	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3139	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3140	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R3141	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3142	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R3143	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R3144	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R3145	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R3167	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3170	VRN-MD2AL000J	J	0	0.1W	Metal Film	AA
R3173	VRD-RA2BE4R7J	J	4.7	1/8W	Carbon	AA
R3174	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R3175	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R3176	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R3177	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3178	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3179	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3180	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3181	VRN-MD2AL221J	J	220	0.1W	Metal Film	AA
R3207	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3208	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3209	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R3210	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R3211	VRN-MD2AL563J	J	56k	0.1W	Metal Film	AA
R3212	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R3213	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R3214	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R3215	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R3302	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

Ref. No.	Part No.	★	Description			Code
R3308	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R3311	VRS-CY1JF102J	J	1.0k	1/16W	M.Ox.	AA
R3312	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R3314	VRN-MD2AL473J	J	47k	0.1W	Metal Film	AA
R5501	VRN-MD2AL122J	J	1.2k	0.1W	Metal Film	AA
R5502	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R5503	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R5504	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R5507	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R6601	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R6602	VRN-MD2AL151J	J	150	0.1W	Metal Film	AA
R6603	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R6604	VRN-MD2AL334J	J	330k	0.1W	Metal Film	AC
R6605	VRN-MD2AL333J	J	33k	0.1W	Metal Film	AA
R6606	VRS-CY1JF471J	J	470	1/16W	M.Ox.	AA
R6607	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R6610	VRN-MD2AL821J	J	820	0.1W	Metal Film	AA
R6611	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R6612	VRS-CY1JF225J	J	2.2M	1/16W	M.Ox.	AA
R6613	VRN-MD2AL561J	J	560	0.1W	Metal Film	AA
R6614	VRN-MD2AL123J	J	12k	0.1W	Metal Film	AA
R6615	VRN-MD2AL223J	J	22k	0.1W	Metal Film	AA
R6616	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R6630	VRN-MD2AL473J	J	47k	0.1W	Metal Film	AA
R6632	VRD-RA2EE4R7J	J	4.7	1/4W	Carbon	AA
R6633	VRN-MD2AL682J	J	6.8k	0.1W	Metal Film	AA
R6634	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R6636	VRN-MD2AL561J	J	560	0.1W	Metal Film	AA
R6637	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
R6638	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R6639	VRN-MD2AL473J	J	47k	0.1W	Metal Film	AA
R6642	VRN-MD2AL472J	J	4.7k	0.1W	Metal Film	AA
R6643	VRN-MD2AL473J	J	47k	0.1W	Metal Film	AA
R7701	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7702	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7703	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7707	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7708	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7709	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7710	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7712	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7715	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7718	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7719	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7720	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7724	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7727	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7728	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7730	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7731	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7732	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7733	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7735	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7736	VRS-CY1JF103J	J	10k	1/16W	M.Ox.	AA
R7738	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7739	VRN-MD2AL562J	J	5.6k	0.1W	Metal Film	AA
R7740	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7743	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R7744	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R7745	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R7747	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7748	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7749	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7750	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7751	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7752	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7753	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7754	VRN-MD2AL393J	J	39k	0.1W	Metal Film	AA
R7755	VRN-MD2AL183J	J	18k	0.1W	Metal Film	AA
R7756	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7757	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R7758	VRN-MD2AL153J	J	15k	0.1W	Metal Film	AA
R7759	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7760	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7761	VRN-MD2AL274J	J	270k	0.1W	Metal Film	AA
R7762	VRN-MD2AL224J	J	220k	0.1W	Metal Film	AA
R7763	VRN-MD2AL473J	J	47k	0.1W	Metal Film	AA
R7764	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
R7765	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R7766	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7767	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7770	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7771	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7772	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7773	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7774	VRN-MD2AL681J	J	680	0.1W	Metal Film	AA
R7775	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
R7776	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
R7777	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7778	VRN-MD2AL154J	J	150k	0.1W	Metal Film	AA
R7779	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7780	VRN-MD2AL154J	J	150k	0.1W	Metal Film	AA
R7781	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7782	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7788	VRN-MD2AL103F	J	10k	0.1W	Metal Film	AA
R7790	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7791	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7792	VRN-MD2AL123J	J	12k	0.1W	Metal Film	AA
R7793	VRN-MD2AL103F	J	10k	0.1W	Metal Film	AA
R7794	VRN-MD2AL123J	J	12k	0.1W	Metal Film	AA
R7795	VRD-RA2EE151J	J	150	1/4W	Carbon	AA
R7796	VRN-MD2AL332J	J	3.3k	0.1W	Metal Film	AA
R7797	VRN-MD2AL182J	J	1.8k	0.1W	Metal Film	AA
R7798	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7799	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R7800	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
R7801	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R7802	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
R7803	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7804	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R7805	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA

PWB-A: DUNTK9489WEW7
MAIN Unit (Continued)

Ref. No.	Part No.	★	Description			Code
R7806	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
⚠ R7807	VRG-SC2EB1R8J	J	1.8	1/4W	Fuse Res.	AE
R7808	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7809	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R7810	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R7811	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R7812	VRN-MD2AL822J	J	8.2k	0.1W	Metal Film	AA
⚠ R7813	VRG-SC2EB1R2J	J	1.2	1/4W	Fuse Res.	AB
R7818	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7820	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7821	VRN-MD2AL102J	J	1.0k	0.1W	Metal Film	AA
R7822	VRN-MD2AL104J	J	100k	0.1W	Metal Film	AA
R7823	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7824	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7826	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7827	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7828	VRN-MD2AL684J	J	680k	0.1W	Metal Film	AA
R7830	VRD-RM2HD561J	J	560	1/2W	Carbon	AA
R7831	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R7832	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R7860	VRN-MD2AL103J	J	10k	0.1W	Metal Film	AA
R7863	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
R8301	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
R8303	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R8304	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R8305	VRD-RA2BE331J	J	330	1/8W	Carbon	AA

SWITCHES

Ref. No.	Part No.	★	Description	Code
S2501	QSW-K0079GEZZ	J	Switch, Eject/Stop	AB
S2502	QSW-K0079GEZZ	J	Switch, Play	AB
S2503	QSW-K0079GEZZ	J	Switch, FF	AB
S2504	QSW-K0079GEZZ	J	Switch, Rew	AB
S2506	QSW-K0079GEZZ	J	Switch, Input	AB
S2507	QSW-K0079GEZZ	J	Switch, CH-Up	AB
S2508	QSW-K0079GEZZ	J	Switch, CH-Down	AB
S2509	QSW-K0079GEZZ	J	Switch, Vol-Up	AB
S2510	QSW-K0079GEZZ	J	Switch, Vol-Down	AB
S2512	QSW-K0079GEZZ	J	Switch, Rec	AB
S3101	QSW-P0593CEZZ	J	Switch, Power	AE
S7701	QSW-F0042AJZZ	J	Switch, Rec Tip	AG

MISCELANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠ F701	QFS-B4023CEZZ	J	Fuse 4A	AC
FB2001	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB7701	RBLN-0036CEZZ	J	Ferrite Bead	AB
FB7702	RBLN-0036CEZZ	J	Ferrite Bead	AB
FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
P350	QPLGN0361CEZZ	J	Plug 3-pin (O)	AB
P401	QPLGZ0840CEZZ	J	Plug 8-pin (M)	AF
P402	QPLGZ1040CEZZ	J	Plug 10-pin (MB)	AE
P404	QPLGN0561CEZZ	J	Plug 5-pin (GC)	AB
P602	QPLGN0603CEZZ	J	Plug 6-pin (K)	AB
P651	QPLGN0361CEZZ	J	Plug Test Point	AB
P703	QPLGN0461CEZZ	J	Plug 4-pin (YC)	AB
P2201	QPLGN0361CEZZ	J	Plug, Test Point	AB
P2401	QPLGN0561CEZZ	J	Plug, Test Point	AB
P3301	QPLGN0352GEZZ	J	Plug, Test Point	AA
P7702	QPLGN0252GEZZ	J	Plug, Test Point	AA
P7706	QPLGZ0883GEZZ	J	Plug 8-pin (AC)	AD
SC3301	QSOCN0611REN1	J	Socket 6-pin (AH)	AC
SC6601	QSOCN0695REZZ	J	Socket 6-pin (AA)	AB
SC6602	QSOCZ0293GEZZ	J	Socket 2-pin (AE)	AC
SC7701	QSOCN0795REZZ	J	Socket 7-pin (AD)	AC
SC7702	QSOCZ0292GEZZ	J	Socket 2-pin (AL)	AC
RMC3101	RRMCU0222CEZZ	J	R/C Receiver	AL
HM601	LX-GZ3001PEZZ	R	Screw	AB
HM602	LX-GZ3001PEZZ	R	Screw	AB
HM603	LX-GZ3001PEZZ	R	Screw	AB
HM604	LX-GZ3001PEZZ	R	Screw	AB
HM605	LX-GZ3001PEZZ	R	Screw	AB
HM606	LX-GZ3001PEZZ	R	Screw	AB
HM607	LX-GZ3001PEZZ	R	Screw	AB
HM608	LX-GZ3002PEZZ	R	Screw	AB
HM609	LX-GZ3002PEZZ	R	Screw	AB
HM611	LX-GZ3002PEZZ	R	Screw	AB
HM612	LX-GZ3002PEZZ	R	Screw	AB
RDA603	PRDAR0219PEFW	R	Heat Sink, Q603	AE
RDA501	PRDAR0242PEFW	R	Heat Sink, IC501	AE
	PSLDM0251PEFW	R	Shield	AD
	PSLDM0252PEFW	R	Shield	AD
	QCNW-2205PEZZ	R	Connecting Cord	AE
	QCNW-5508PEN3	R	Connecting Cord (OC)	AD
	LHLDP1057PEZZ	R	Holder	AD
	LHLDZ1893AJ00	J	Holder	AB
	LX-BZ3100CEFD	J	Screw	AA
	LX-BZ3100CEFD	J	Screw	AA
	LX-TZ3004CEFD	J	Screw	AA

PWB-D: DUNTK9518WEV2
FRONT AV Unit

RESISTOR

Ref. No.	Part No.	★	Description			Code
R431	VRD-RA2BE750J	J	75	1/8W	Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
J401	QJAKF0040CEZZ	J	Jack, AV in	AF

PWB-C: DUNTK9490WEW4
POWER Unit

INTEGRATED CIRCUITS

	Ref. No.	Part No.	★	Description	Code
⚠	IC701	VHiSTRF6624-1	J	STR-F6624	AW
⚠	IC702	RH-FX0034CEZZ	J	PC817	AE
⚠	IC703	RH-FX0034CEZZ	J	PC817	AE
	IC756	VHiBA005T//-1	J	BA05T	AF
	IC765	VHiPQ09RD11-1	J	PQ09RD11	AG
⚠	IC775	RH-FX0034CEZZ	J	PC817	AE

TRANSISTORS

	Ref. No.	Part No.	★	Description	Code
	Q735	VS2SC3198-Y-1	J	2SC3198	AA
	Q750	VSKTA1024-Y-1	J	KTA1024	AD
	Q751	VS2SC2229O/1E	J	2SC2229	AD
	Q752	VS2SC2229O/1E	J	2SC2229	AD
	Q756	VS2SD471-KL1E	J	2SD471	AC

DIODES

	Ref. No.	Part No.	★	Description	Code
⚠	D701	RH-DX0154CEZZ	J	Diode	AC
⚠	D702	RH-DX0154CEZZ	J	Diode	AC
⚠	D703	RH-DX0154CEZZ	J	Diode	AC
⚠	D704	RH-DX0154CEZZ	J	Diode	AC
	D705	VHD1SS82///1A	J	Diode	AC
	D706	VHD10ELS2//-1	J	Diode	AC
	D707	VHD1SS82///1A	J	Diode	AC
	D708	VHSSFOR5D43-1	J	Si. Control Rectifier	AC
	D709	RH-EX0610GEZZ	J	Zener Diode	AA
	D711	RH-EX0207CEZZ	J	Zener Diode	AA
	D722	VHD1SS82///1A	J	Diode	AC
	D725	RH-DX0469CEZZ	J	Diode	AF
	D726	RH-DX0469CEZZ	J	Diode	AF
	D727	RH-DX0461CEZZ	J	Diode	AG
	D735	RH-EX0617GEZZ	J	Zener Diode	AA
	D739	RH-EX0602GEZZ	J	Zener Diode	AA
	D740	VHD1SS82///1A	J	Diode	AC
	D743	VHD1SS119//-1	J	Diode	AB
	D744	VHD1SS119//-1	J	Diode	AB
	D751	RH-EX0617GEZZ	J	Zener Diode	AA
⚠	D775	RH-DX0441CEZZ	J	Diode	AC
⚠	D776	RH-DX0279CEZZ	J	Diode	AB
	PR702	RMPTP0026CEZZ	J	Packaged Circuit	AF

COILS

	Ref. No.	Part No.	★	Description	Code
	L725	RCiLP0195CEZZ	J	Coil	AD
	L726	RCiLP0179CEZZ	J	Coil	AD
	L727	RCiLP0179CEZZ	J	Coil	AD

TRANSFORMER

	Ref. No.	Part No.	★	Description	Code
⚠	T701	RTRNZ0114PEZZ	R	Transformer	AR

CONTROL

	Ref. No.	Part No.	★	Description	Code
	R738	RVR-M4333CEZZ	J	6.8k (B) 115V Adj.	AC

CAPACITORS

(EL. : Electrolytic)

	Ref. No.	Part No.	★	Description			Code
⚠	C702	VCKYPB2HE103P	J	0.01	500V	Ceramic	AB
⚠	C703	VCKYPB2HE103P	J	0.01	500V	Ceramic	AB
	C705	RC-EZ0613CEZZ	J	470	200V	EL.	AL
	C706	RC-KZ0404CEZZ	J	0.0033	2kV	Ceramic	AE
	C708	VCCSPA1HL471J	J	470p	50V	Ceramic	AA
	C709	VCEA0A1HW107M	J	100	50V	EL.	AB
	C710	VCQYTA1HM222J	J	2200p	50V	Mylar	AA
	C711	VCFYFA1HA224J	J	0.22	50V	Mylar	AB
⚠	C712	RC-KZ0312CEZZ	J	0.0047		Ceramic	AD
	C722	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
	C723	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
	C724	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
	C725	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
	C726	VCEAGH1EW228M	J	2200	25V	EL.	AE
	C727	VCEAHV1CN108M	J	1000	16V	EL.	AE
	C728	RC-KZ0365CEZZ	J	0.001	2kV	Ceramic	AD
	C729	RC-KZ0365CEZZ	J	0.001	2kV	Ceramic	AD
	C730	RC-EZ0724CEZZ	J	100	160V	EL.	AG
	C735	VCCCPA1HH680J	J	68p	50V	Ceramic	AA
	C739	VCEA0A1HW104M	J	0.1	50V	EL.	AB
	C748	VCEA0A1HW107M	J	100	50V	EL.	AB
	C756	VCEA0A1CW476M	J	47	16V	EL.	AB
	C757	VCEA0A0JW107M	J	100	6.3V	EL.	AB
	C758	VCEA0A1CW226M	J	22	16V	EL.	AB
	C759	VCEA0A1AW476M	J	47	10V	EL.	AB
	C768	VCEA0A1CW476M	J	47	16V	EL.	AB
	C769	VCEA0A1CW476M	J	47	16V	EL.	AB
	C775	VCKYPA1HB103K	J	0.01	50V	Ceramic	AA

RESISTORS

(M-Ox. : Metal Oxide)

	Ref. No.	Part No.	★	Description			Code
⚠	R701	VRW-KP3HC1R8K	J	1.8	5W	Cement	AC
⚠	R703	VRC-UB2HG275K	J	2.7M	1/2W	Solid	AF
	R704	VRD-RM2HD154J	J	150k	1/2W	Carbon	AA
	R706	RR-NZ0048CEZZ	J	0.15	2W		AD
	R707	VRS-SV2HC471J	J	470	1/2W	M-Ox.	AA
	R709	VRN-GA2EB1R0J	J	1.0	1/4W	Metal Film	AA
	R710	VRD-RM2HD180J	J	18	1/2W	Carbon	AA
	R711	VRD-RA2EE122J	J	1.2k	1/4W	Carbon	AA
	R713	VRS-SV2HC272J	J	2.7k	1/2W	M-Ox.	AA
	R714	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
	R715	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
	R716	VRD-RA2EE152J	J	1.5k	1/4W	Carbon	AA
	R717	VRD-RM2HD104J	J	100k	1/2W	Carbon	AA
	R719	VRW-KQ3HC4R7K	J	4.7	5W	Cement	AE
	R727	VRS-VV3DB223J	J	22k	2W	M-Ox.	AA
	R733	VRD-RA2EE152J	J	1.5k	1/4W	Carbon	AA
	R735	VRD-RA2EE681J	J	680	1/4W	Carbon	AA
	R736	VRD-RM2HD563J	J	56k	1/2W	Carbon	AA
	R737	VRD-RA2EE824J	J	820k	1/4W	Carbon	AA
	R739	VRD-RA2EE681J	J	680	1/4W	Carbon	AA
	R740	VRD-RM2HD470J	J	47	1/2W	Carbon	AA
	R741	VRN-RA2BK332F	J	3.3k	1/8W	Metal Film	AA
	R743	VRD-RM2HD823J	J	82k	1/2W	Carbon	AA

PWB-C: DUNTK9490WEW4
POWER Unit (Continued)

Ref. No.	Part No.	★	Description			Code
R744	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
R745	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
R746	VRD-RA2BE122J	J	1.2k	1/8W	Carbon	AA
R747	VRD-RM2HD473J	J	47k	1/2W	Carbon	AA
R748	VRD-RA2EE182J	J	1.8k	1/4W	Carbon	AA
R749	VRD-RA2EE222J	J	2.2k	1/4W	Carbon	AA
R750	VRD-RA2EE392J	J	3.9k	1/4W	Carbon	AA
R751	VRD-RA2BE104J	J	100k	1/8W	Carbon	AA
R752	VRD-RM2HD104J	J	100k	1/2W	Carbon	AA
R753	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R754	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R756	VRD-RM2HD221J	J	220	1/2W	Carbon	AA
R766	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R774	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R775	VRD-RM2HD123J	J	12k	1/2W	Carbon	AA
⚠ R776	VRD-RM2HD153J	J	15k	1/2W	Carbon	AA
R777	VRD-RA2EE681J	J	680	1/4W	Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠ RY701	RRLYU0038CEZZ	J	Relay	AM
⚠ RY725	RRLYU0038CEZZ	J	Relay	AM
FB702	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB704	RBLN-0036CEZZ	J	Ferrite Bead	AB
FB725	RBLN-0054CEZZ	J	Ferrite Bead	AB
FB726	RBLN-0054CEZZ	J	Ferrite Bead	AB
FB727	RBLN-0057CEZZ	J	Ferrite Bead	AC
FB731	RBLN-0057CEZZ	J	Ferrite Bead	AC
FB732	RBLN-0057CEZZ	J	Ferrite Bead	AC
P351	QPLGN0261CEZZ	J	Plug 2-pin (SP)	AB
P352	QPLGN0361CEZZ	J	Plug 3-pin (OR)	AB
P701	QPLGN0207CEZZ	J	Plug 2-pin (M)	AA
P702	QPLGN0304CEZZ	J	Plug 3-pin (E)	AB
P705	QPLGN0361CEZZ	J	Plug 3-pin (OC)	AB
SC401	QSOCZ0840CEZZ	J	Socket 8-pin (MA)	AD
SC402	QSOCZ1040CEZZ	J	Socket 10-pin (MB)	AD
RDA701	PRDAR0209PEFW	R	Heat Sink, IC701	AF
RDA765	PRDAR0232PEFW	R	Heat Sink	AF
HM701	LX-GZ3001PEZZ	R	Screw	AB
HM702	LX-GZ3001PEZZ	R	Screw	AB
HM703	LX-GZ3001PEZZ	R	Screw	AB
HM704	LX-GZ3001PEZZ	R	Screw	AB
HM705	LX-GZ3001PEZZ	R	Screw	AB
HM706	LX-GZ3001PEZZ	R	Screw	AB
HM707	LX-GZ3001PEZZ	R	Screw	AB
HM708	LX-GZ3001PEZZ	R	Screw	AB
HM709	LX-GZ3001PEZZ	R	Screw	AB
HM710	LX-GZ3001PEZZ	R	Screw	AB
	QCNW-2211PEZZ	R	Connecting Cord	AD
	QCNW-6008PEN3	R	Connecting Cord (PG)	AE
	LX-BZ3049GEFD	J	Screw	AA
	LX-BZ3100CEFD	J	Screw	AA

PWB-B: DUNTK8606WEW4
CRT Unit

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q852	VS2SC2229O/1E	J	2SC2229	AD
Q854	VS2SC2229O/1E	J	2SC2229	AD
Q856	VS2SC2229O/1E	J	2SC2229	AD
Q881	VS2SA1266-Y-1	J	2SA1266	AA

DIODES

Ref. No.	Part No.	★	Description	Code
D881	VHD1SS119//-1	J	Diode	AB
D882	VHD1SS119//-1	J	Diode	AB
D885	VHD1SS119//-1	J	Diode	AB

CAPACITORS

(EL. : Electrolytic)

Ref. No.	Part No.	★	Description			Code
C851	VCCCPA1HH151J	J	150p	50V	Ceramic	AA
C852	VCCCPA1HH151J	J	150p	50V	Ceramic	AA
C853	VCCCPA1HH151J	J	150p	50V	Ceramic	AA
C854	RC-KZ0016CEZZ	J	0.01	1.4kV	Ceramic	AC
C881	VCEA0A1HW106M	J	10	50V	EL.	AB
C883	VCEA0A1CW336M	J	33	16V	EL.	AB

RESISTORS

(M.Ox. : Metal Oxide.)

Ref. No.	Part No.	★	Description			Code
R851	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R852	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R853	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R857	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R858	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R859	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R860	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R861	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R865	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R866	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R867	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R868	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R869	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R873	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R874	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R881	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R882	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R884	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
P851	QPLGN0561CEZZ	J	Plug 5-pin (GC)	AB
P852	QPLGN0461CEZZ	J	Plug 4-pin (YC)	AB
SC851	QSOCV0842CEZZ	J	CRT Socket	AH
	QCNW-5025PEN4	R	Connecting Cord (YC)	AE
	QCNW-5030PEN5	R	Connecting Cord (GC)	AE

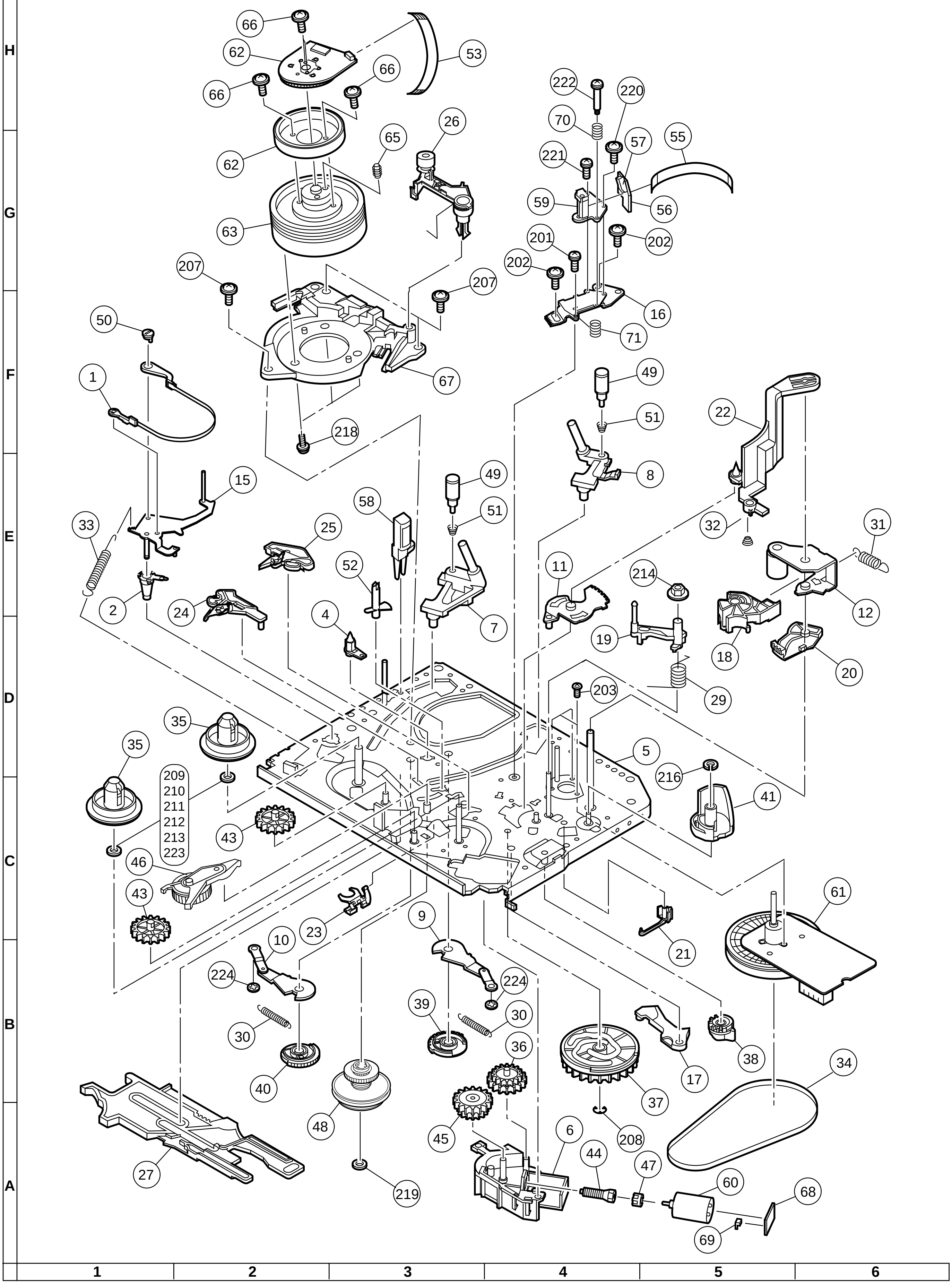
MECHANISM CHASSIS

Ref. No.	Part No.	★	Description	Code
1	LBNDK1011AJZZ	V	Tension Band Ass'y	AH
2	LBOSZ1007AJZZ	V	Tension Arm Boss	AD
4	LBOSZ1006AJZZ	V	Cassette Stay L	AD
5	LCHSM0166AJZZ	V	Main Chassis Ass'y	BA
6	LHLDZ2016AJZZ	V	Loading Motor Block	AG
7	LPOLM0063GEZZ	J	Supply Pole Base Ass'y	AM
8	LPOLM0064GEZZ	J	Take-Up Pole Base Ass'y	AM
9	MLEVF0518AJZZ	V	Take-Up Loading Arm Ass'y	AF
10	MLEVF0519AJZZ	V	Supply Loading Arm Ass'y	AF
11	MLEVF0499AJZZ	V	Pinch Drive Lever Ass'y	AG
12	MLEVF0500GEZZ	J	Pinch Roller Lever Ass'y	AW
15	MLEVF0523AJZZ	V	Tension Arm Ass'y	
16	LANGF9620AJFW	V	A/C Head Plate	AG
17	MLEVP0271AJZZ	V	Sifter Drive Lever	AE
18	MLEVP0272AJZZ	V	Pinch Double Action Lever	AD
19	MLEVP0301AJZZ	V	Reverse Guide Lever Ass'y	AL
20	MLEVP0275AJZZ	V	Reverse Drive Lever	AD
21	MLEVP0292AJZZ	V	Slow Brake Lever	AE
22	MLEVP0290AJZZ	V	Open Lever	AD
23	MLEVP0293AJZZ	V	Clutch Lever	AE
24	MLEVP0294AJZZ	V	Sup Main Brake Ass'y	AF
25	MLEVP0295AJZZ	V	Take-Up Main Brake Ass'y	AF
26	CLEVP0287AJZZ	V	Auto Head Cleaner Ass'y	AG
27	MSLiP0010AJZZ	V	Sifter	AH
29	MSPRD0175AJFJ	V	Reverse Guide Spring 2	AE
30	MSPRT0402AJFJ	V	Loading Double Action Spring	AE
31	MSPRT0403AJFJ	V	Pinch Double Action Spring	AD
32	MSPRC0213AJFJ	V	Earth Spring	AC
33	MSPRT0416AJFJ	V	Tension Spring	AD
34	NBLTK0067AJ00	V	Reel Belt	AE
35	NDAiV1078AJ00	V	Reel Disk	AE
36	NGERH1293AJZZ	V	Loading Connect Gear	AD
37	NGERH1295AJ00	V	Master Cam	AE
38	NGERH1294AJZZ	V	Casecon Drive Gear	AD
39	NGERH1270AJZZ	V	Take-Up Loading Gear	AF
40	NGERH1271AJZZ	V	Supply Loading Gear	AD
41	NGERH1272AJZZ	V	Pinch Drive Cam	AE
43	NGERH1299AJZZ	V	Reel Relay Gear	AE
44	NGERW1070AJZZ	V	Worm Gear	AD
45	NGERW1066AJZZ	V	Worm Wheel Gear	AD
46	NiDR-0018AJZZ	V	Idler Wheel Ass'y	AK
47	NPLYV0162AJZZ	V	Motor Pully	AD
48	NPLYV0163AJZZ	V	Limitter Pulley Ass'y	AM
49	NROLP0131GEZZ	J	Guide Roller	AL
50	NSFTP0032AJZZ	V	Tension Pole Adjuster	AB
51	MSPRC0217AJFJ	V	Guide Roller Spring	AC
52	PREFL1011AJZZ	V	Light Guide	AE
53	QCNW-0247AJZZ	V	FFC for Drum Motor	AG
55	QCNW-0272AJZZ	V	FFC for A/C Head	AF
56	QPWBF5469AJZZ	V	A/C Head PWB	AE
57	QSOCN0605REN1	V	Socket, 6-pin	AB
58	RHEDT0036AJZZ	V	Full Erase Head	AM
59	RHEDU0088GEZZ	J	A/C Head Ass'y	AV
60	RMOTM1078GEZZ	J	Loading Motor	AK
61	RMOTN2055GEZZ	J	Capstan Motor	BA
62	RMOTP1135GEZZ	J	Drum Drive Motor	AX
63	DDRMW0029TEX1	V	Upper and Lower Drum Ass'y	
65	QBRSK0041GEZZ	J	Drum Earth Brush	AD
66	XBPSD26P05J00	V	Drum Drive Motor Mounting Screw (SW2.6P+5S)	AA
67	PGiDC0056GEFW	J	Drum Base	AL
68	QPWBF5468AJZZ	V	PWB (LDG Motor)	AE
69	QPLGZ0292GEZZ	J	Socket (LDG Motor)	AE
70	MSPRC0223AJFJ	V	Azimuth Spring	AC
71	MSPRC0224AJFJ	V	Height Adjusting Spring	AC

SCREW, NUTS AND WASHERS

Ref. No.	Part No.	★	Description	Code
201	XBPSD26P08000	V	Screw 2.6P+8S A/C Head	AA
202	LX-HZ3082GEZZ	J	A/C Head Screw	AD
203	XHPSD26P06000	V	Screw, C2.6P+6S (For Capstan Motor)	AA
207	XHPSD30P08WS0	V	Screw, C3.0P+8S (For Drum Base)	AA
208	XRESJ30-06000	V	E-Ring, E-3	AA
209	XWHJZ31-05052	V	Washer, W3.1-5.2-0.5	AC
210	XWHJZ31-03052	V	Washer, W3.1-5.2-0.3	AC
211	XWHJZ31-04052	V	Washer, W3.1-5.2-0.4	AC
212	XWHJZ31-06052	V	Washer, W3.1-5.2-0.6	AC
213	XWHJZ31-07052	V	Washer, W3.1-5.2-0.7	AC
214	PSPAP0009AJZZ	V	Reverse Guide Adjusting Nut	AB
216	LX-WZ1041GE00	J	CW 2.5-6-0.5 CAM	AA
218	XBPSD30P08J00	V	Drum Base Mounting Screw (SW 3P+8S)	AA
219	LX-WZ1098GE00	J	CW 2.6-4.7-10.5 RED	AB
220	LX-BZ3096GEFD	J	Tilt Adjusting Screw	AA
221	XBPSD26P06000	V	Azimuth Adjusting Screw 2.6+6S	AA
222	LX-BZ3197GEFD	J	Screw (A/C Head)	AD
223	XWHJZ31-08052	V	Washer, W3.1-5.2-0.8	AC
224	LX-RZ3015GEFJ	J	CS Washer	

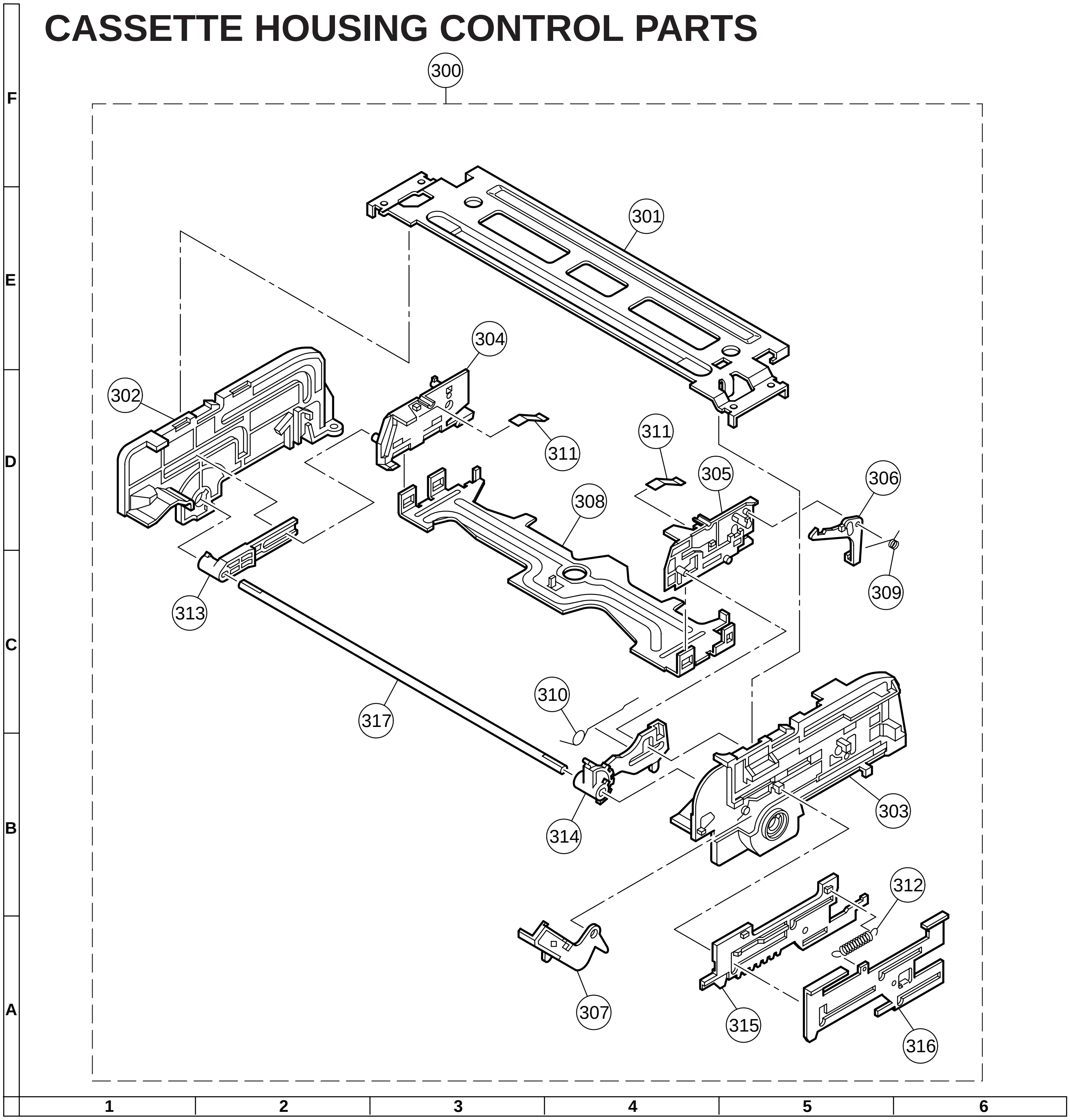
MECHANISM CHASSIS PARTS



CASSETTE HOUSING CONTROL

Ref. No.	Part No.	★	Description	Code
300	CHLDX3081TEV2	V	Cassette Housing	
301	LANGF9592AJFW	V	Upper Plate	AL
302	LHLDX1028AJ00	V	Frame (L)	AH
303	LHLDX1032AJ00	V	Frame (R)	AH
304	LHLDX1030AJZZ	V	Holder (L)	AE
305	LHLDX1031AJZZ	V	Holder (R)	AE
306	MLEVF0469AJFW	V	Proof Lever (R)	AE
307	MLEVP0281AJ00	V	Door Open Lever	AD
308	MSLiF0076AJFW	V	Slider	
309	MSPRD0151AJFJ	V	Proof Lever (R) Spring	AB
310	MSPRD0166AJFJ	V	Drive Gear (R) Spring	AE
311	MSPRP0175AJFJ	V	Cassette Spring	AE
312	MSPRT0381AJFJ	V	Double Action Spring	AC
313	NGERH1278AJZZ	V	Drive Gear L	AE
314	NGERH1309AJZZ	V	Drive Gear R	
315	NGERR1008AJ00	V	Double Action Rack Gear	AE
316	NGERR3005AJFW	V	Drive Angle Gear	AG
317	NSFTD0041AJFD	V	Main Shaft	AH

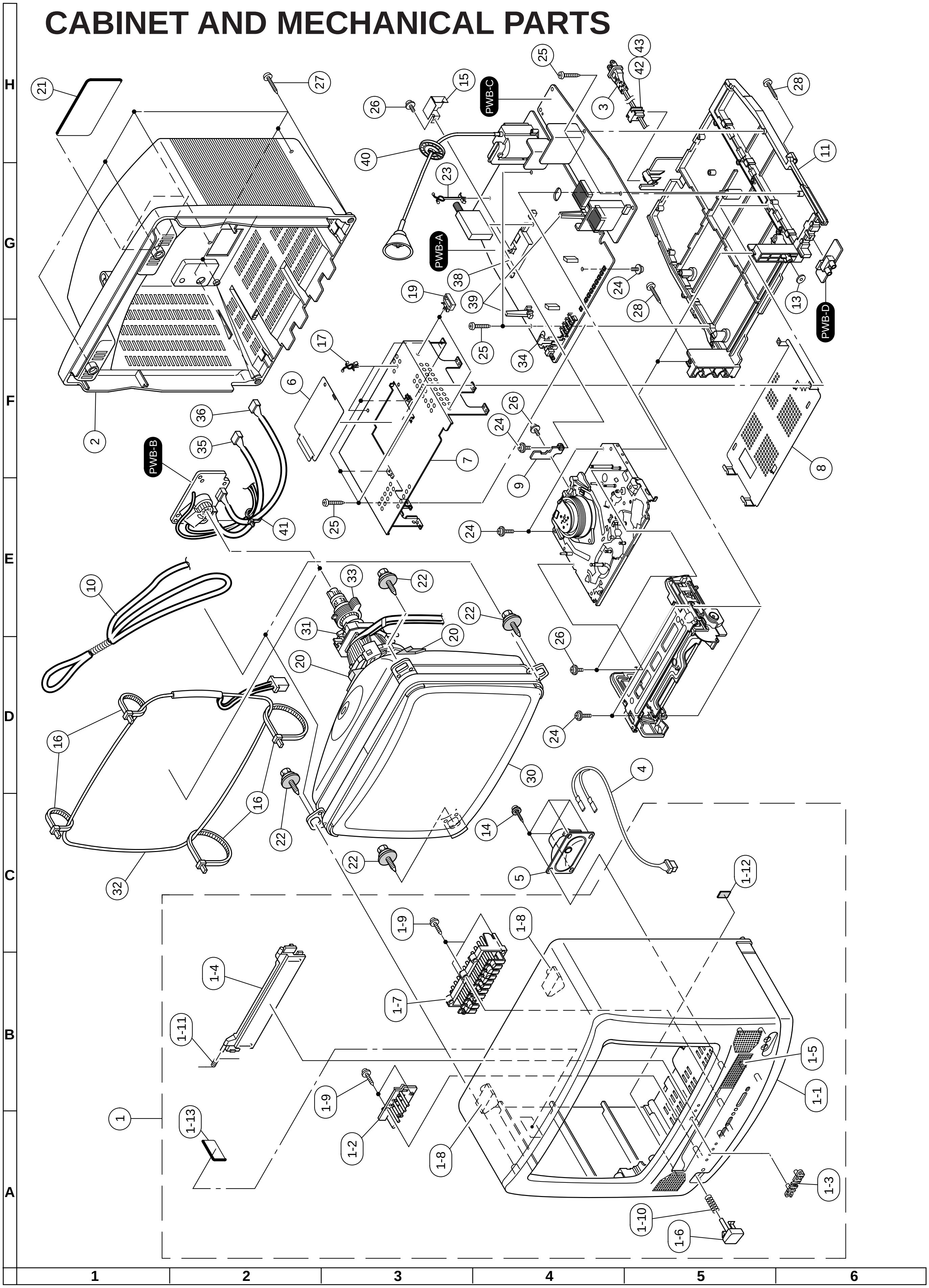
CASSETTE HOUSING CONTROL PARTS



CABINET AND MECHANICAL PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA2477WEV7	J	Front Cabinet Ass'y	BF
1-1	*Not Available*	–	Front Cabinet	—
1-2	GCOVA0084PESA	R	Cover, R/C	AE
1-3	HBDGB0018PESA	R	SHARP Badge	AE
1-4	HDECQ0129PESA	R	Cassette Flap Door	AG
1-5	HDECQ0109PEKA	R	Decoration Plate	AD
1-6	JBTN-0278PEKA	R	Power Button	AC
1-7	JBTN-0277PESA	R	TV Control Button	AG
1-8	LHLDZ0040PEZZ	R	Bonding Boss	AC
1-9	LX-TZ3004CEFD	J	Screw	AA
1-10	MSPRC0005PEFW	R	Spring, for Power Button	AB
1-11	MSPRD0123AJFJ	J	Spring, for Flap Door	AC
1-12	PSPAH0012PE00	R	Spacer	AA
1-13	TCAUS0010PEZZ	R	Caution Card	AB
2	GCABB2349PEKA	R	Rear Cabinet	BB
⚠ 3	QACCD3064CESA	J	AC Cord (ACC701)	AM
4	QCNW-2206PEZZ	R	Connecting Cord	AD
5	VSP9050PB15WA	J	Speaker (SP301)	AN
6	PSLDM0250PEFW	R	Shield	AD
7	PSLDM0248PEFW	R	Top Shield	AN
8	PSLDM0249PEFW	R	Bottom Shield	AG
9	LANGT0038PEFW	R	Fixing Metal	AC
10	QEARC1423PEZZ	R	Coating Earth	AG
11	LCHSM0072PEKZ	R	Chassis Frame	AQ
13	PSPAG0022PE00	R	Spacer	AC
14	LX-TZ0012PEFD	R	Screw	AC
15	PSLDM0253PEFW	R	Shield	AC
16	LHLDW0003PEKZ	R	ADG Holder	AB
17	LHLDW1047PEZZ	R	Holder	AB
19	LHLDW1065PEKZ	R	Holder	AD
20	PSPAG0004PEZZ	R	Spacer	AB
21	TLABM1462PEZZ	R	Model Label	AB
22	LX-TZ0013PEFD	R	Screw	AD
23	LHLDW1067PEKZ	R	Holder	AC
24	LX-HZ3001PEFD	R	Screw	AA
25	XEBSD30P12000	J	Screw	AA
26	XHPSD30P06WS0	J	Screw	AA
27	XTASD40P20000	J	Screw	AA
28	XTASD40P20000	J	Screw	AA
⚠ 30	VB37GDA86X/2E	J	Picture Tube (V101)	BZ
⚠ 31	RCiLH0149PEZZ	R	Deflection Yoke (DY601)	BA
⚠ 32	RCiLG0403PEZZ	R	Degaussing Coil	AK
33	PMAGF3041CEZZ	J	Magnet	AG
34	QSW-F0042AJZZ	J	Rec Tip Switch (S7701)	AG
35	QCNW-5025PEN4	R	Connecting Cord (YC)	AE
36	QCNW-5030PEN5	R	Connecting Cord (GC)	AE
38	PSLDM0251PEFW	R	Head Amp. Shield	AD
39	LHLDZ1893AJ00	J	Start/End Sensor Holder	AB
40	LHLDZ0063PEZZ	R	Holder	
41	LHLDW1075PEKZ	R	Wire Holder	
42	LHLDK0016PEZZ	R	AC Cord Holder	AC
43	LHLDK0011PEZZ	R	AC Cord Holder	AE

CABINET AND MECHANICAL PARTS



SUPPLIED ACCESORIES

Ref. No.	Part No.	★	Description	Code
	TGAN-0018PEZZ	R	Guarantee Card	AD
	TCAUH0011PEZZ	R	Caution Card	AB
	TiNS-6665PEZZ	R	Operation Manual	AG
	QANTR0018PEZZ	R	Rod Antenna	AQ
	RUNTK0165CEZZ	J	Antenna Adaptor	AM
	RRMCG1331PESA	R	Infrared R/C Unit	AV

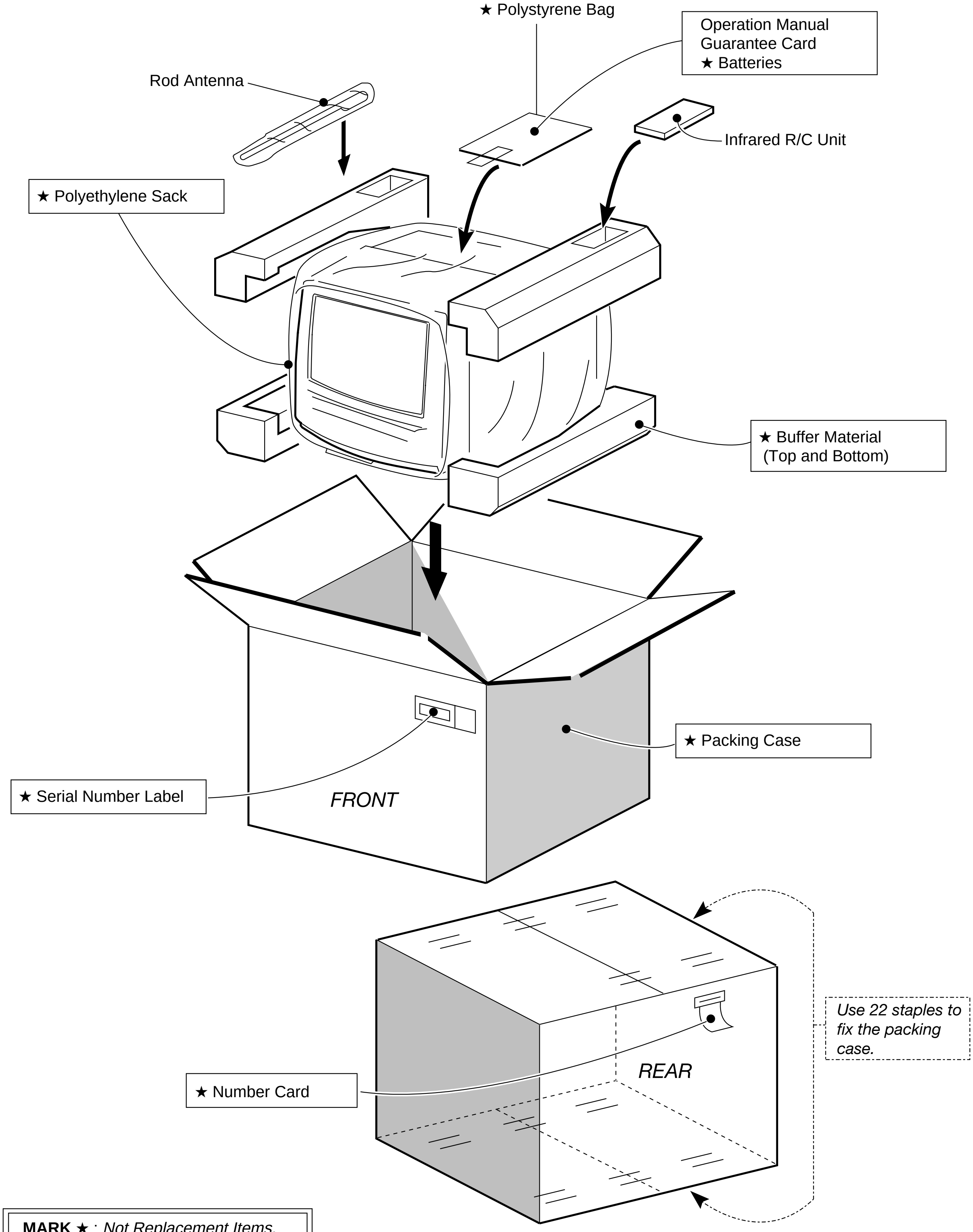
PACKING PARTS
(NOT REPLACEMENT ITEM)

Ref. No.	Part No.	★	Description	Code
	SPAKC6388PEZZ	–	Packing Case	—
	SSAKA0031PEZZ	–	Polyethylene Bag	—
	SPAKP0095PEZZ	–	Polyethylene Sack	—
	SPAKX2671PEZZ	–	Buffer Material	—
	TLABN0001PEZZ	–	Serial Number Label	—
	TLABK0002PEZZ	–	Number Card	—
	TLABZ0125PEZZ	–	Label	—

PACKING OF THE SET

• SETTING POSITIONS OF THE KNOBS

Power SW	OFF



MARK ★ : *Not Replacement Items.*

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